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LAKE SUPERIOR
LIMNOLOGICAL DATA, 1951-57

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SPECIAL SCIENTIFIC REPORT–FISHERIES No. 297

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

Explanatory Note

The series embodies results of investigations, usually of restricted scope, intended to aid or direct management or utilization practices and as guides for administrative or legislative action. It is issued in limited quantities for the official use of Federal, State, or cooperating Agencies and in processed form for economy and to avoid delay in publication.

United States Department of the Interior, Fred A. Seaton, Secretary
Fish and Wildlife Service, Arnie J. Suomela, Commissioner

LAKE SUPERIOR LIMNOLOGICAL DATA

1951 - 1957

Compiled and analyzed

by

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ABSTRACT

Physical, chemical, and plankton data collected by the M/V Cisco (U. S. Fish and Wildlife Service) in Lake Superior in 1952 and 1953, temperature data obtained by the M/V Williams (U. S. Lake Survey) in 1956 and 1957, and temperatures recorded by thermographs during 1951-1957 are presented with limited interpretation.

Ion concentrations were low and varied little vertically, seasonally, or from area to area. A relatively high plankton abundance along the south shore from the Apostle Islands to Grand Marais, Michigan, was related to relatively high phosphorus concentrations. Much of this phosphorus may enter the lake at Duluth. If so, it must be transported by an inshore current. This movement furnishes evidence of a general counterclockwise circulation as indicated by drift cards released in 1953.

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LAKE SUPERIOR LIMNOLOGICAL DATA
1951 - 1957

The Great Lakes have long been a challenge to limnologists and freshwater hydrographers. Even now, only modest advances have been made in exploring this largest system of freshwater lakes in the world (Smith 1957). Lake Superior, the largest freshwater lake of the world, has received less attention than any other of the Great Lakes, probably because of the problems of special operating and equipment imposed by its great area (31,820 square miles) and depth (maximum, 222 fathoms). Only recently has this formidable equipment requirement been met in operations of specially constructed Great Lakes research vessels by the U. S. Fish and Wildlife Service and U. S. Lake Survey, and of refitted existing vessels by the University of Minnesota (Ruschmeyer, Olson, and Bosch 1957).

Data presented here were gathered during the operations of the M/V Cisco (Great Lakes Fishery Investigations, U. S. Fish and Wildlife Service--see Moffett 1954 for description) in 1952 and 1953, and the M/V Williams (U. S. Lake Survey) in 1956 and 1957. Also included are surface temperatures obtained from thermographs operated by the staff at the Marquette station of the Great Lakes Fishery Investigations in 1951-1957. This report lists limnological data from these sources, without extensive interpretation, to make the records available to other interested agencies.

OPERATIONS OF M/V CISCO

The Cisco was used in an exploratory survey of Lake Superior in August 1952 to collect data for planning the full-season (May-October) study of 1953. After lake trout populations of Lakes Michigan and Huron were depleted following invasion of the sea lamprey (Hile 1949; Hile, Eschmeyer, and Lunger 1951), only Lake Superior remained as a source of the life-history information vitally needed for planning future rehabilitation programs. Since the early life history was least known and most important in establishing a planting program, it received primary attention in the study. Operations of the vessel were guided by requirements for collection of data on lake trout and hence were concentrated in the inshore nursery areas for this species.

Restrictions imposed by the lake trout study limited but did not preclude the collection of extensive limnological data. Temperature measurements with a bathythermograph were made at frequent intervals along routes traveled in 1952, and limited physical and chemical data were obtained at selected hydrographic stations. Plans for 1953 provided for routine collection of temperature and chemical data at regular intervals between ports of call and fishing locations. Hydrographic stations were established along these transects as time and conditions permitted. Where hydrographic stations were located on routes of travel or at important fishing locations, repeat visits were possible.

The 3-week cruise in August 1952 covered the south shore of Lake Superior east of the Keweenaw Peninsula, Keweenaw Bay, and most United States waters (north and south shores including Isle Royale) from Keweenaw Peninsula to the Apostle Island region (fig. 1). During the 1953 season the lake was covered from the Two Harbors-Port Wing line in the west to the eastern extremity of the lake (figs. 2, 3). The lake was divided roughly into west, central (Keweenaw-Isle Royale area), and east sections. These areas were covered in approximately 2-week cruises on the following schedule:

Cruise	Period (1953)	Section
I	May 3-13	Central
II	May 21-June 4	West
III	June 11-23	East
IV	July 1-14	Central
V	July 22-August 14	West
VI	August 12-25	East
VII	September 2-14	Central
VIII	September 27-October 6	Central
IX	October 14-25	Central

Sections were not given well defined boundaries and some overlap usually occurred in coverage of adjacent sections in succeeding cruises. Restriction of Cruise VIII to the central section was necessitated by adverse weather and Cruise IX was largely devoted to sampling juvenile, and to tagging adult lake trout between Marquette and the Keweenaw Peninsula.

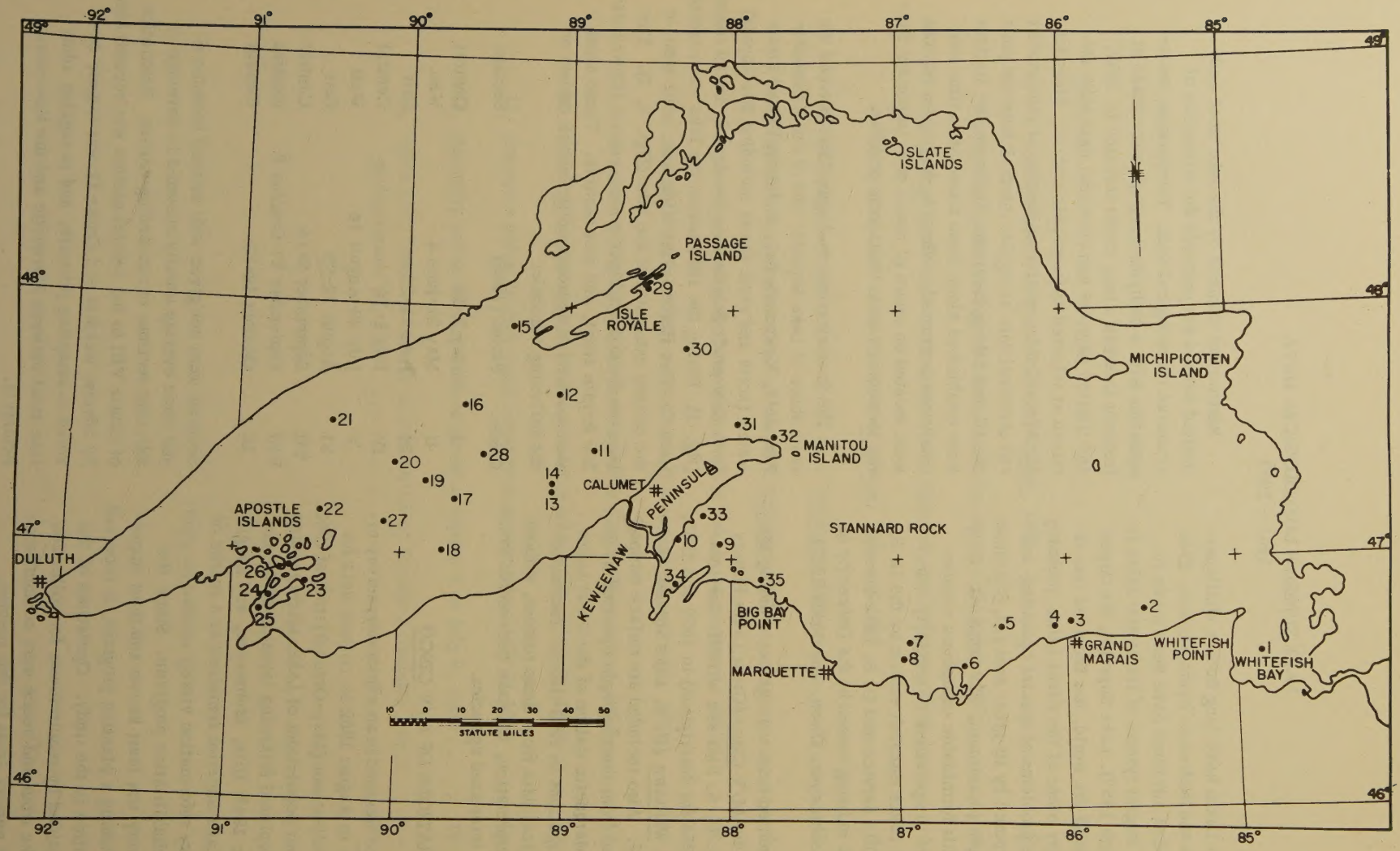

Figure 1. --Hydrographic stations of the M/V Cisco, 1952.

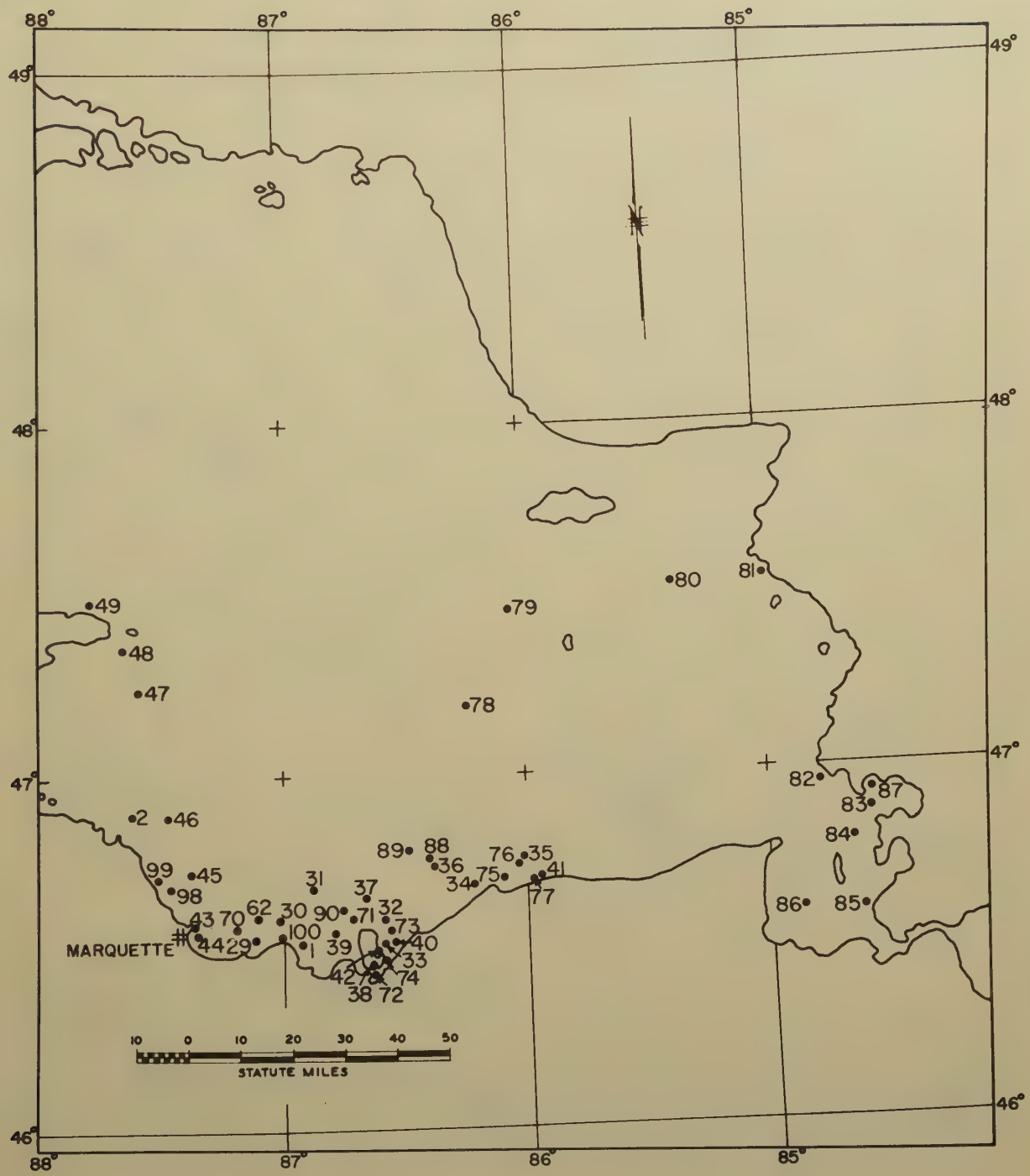

Figure 2.--Hydrographic stations in eastern Lake Superior, M/V Cisco, 1953.

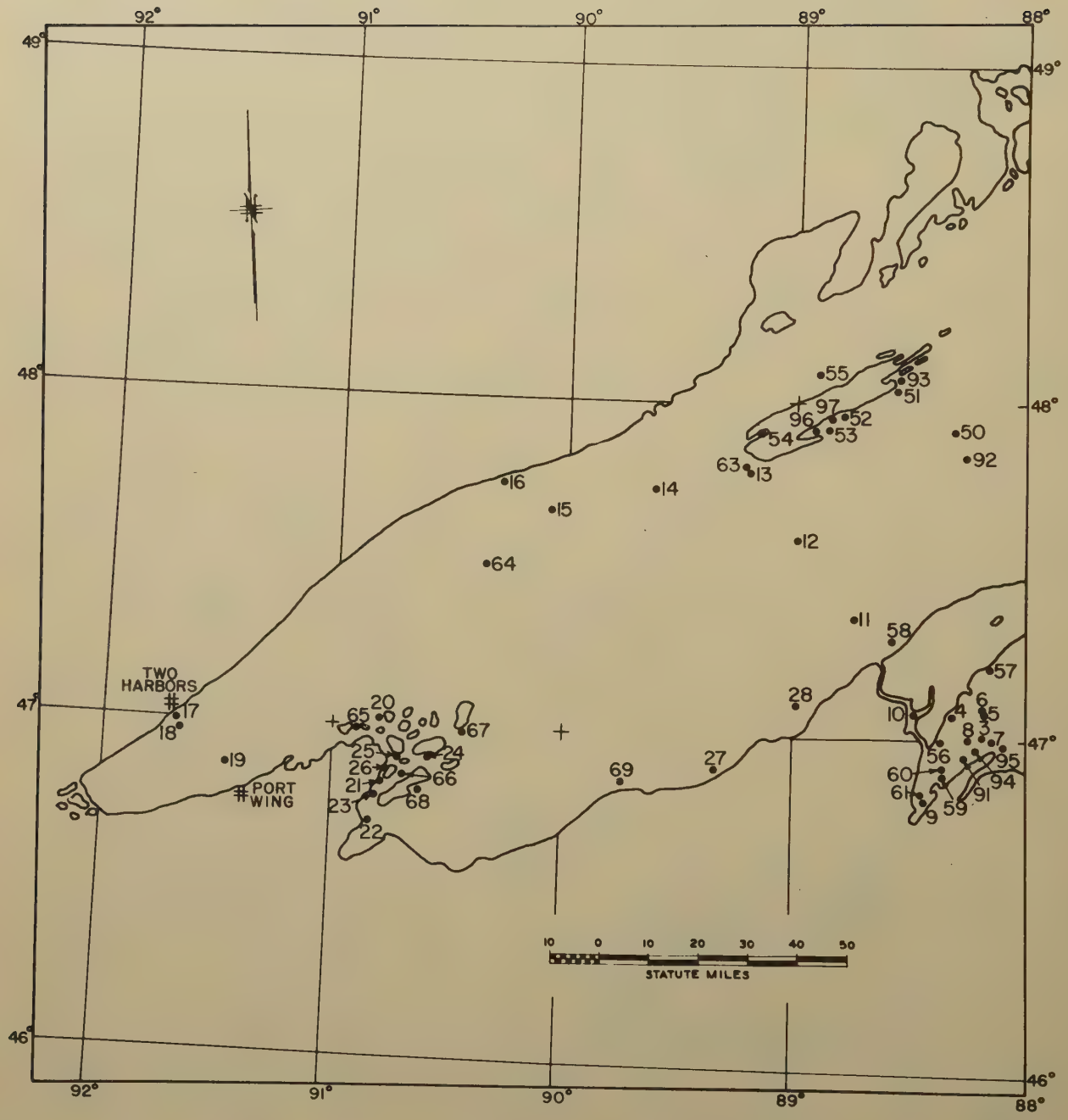

Figure 3.--Hydrographic stations in western Lake Superior, M/V Cisco, 1953.

Stations were numbered consecutively throughout the operating period each year and usually when a station was visited more than once in a year it retained its original number. As a rule, hydrographic stations were established at fishing locations, and at intervals between fishing stations and ports of call as time and conditions permitted. Temperature records at hydrographic stations were made with bathythermographs and with reversing thermometers attached to Nansen bottles. Surface temperatures were determined by lowering a resistance-thermometer bulb just below the surface beside the ship or by immersing it in a bucket of freshly collected lake water. After Cruise II of 1953, surface temperatures were also taken from a resistance-thermometer bulb inserted in the ship's sea chest which has an intake about 5 feet below the waterline.

Water for chemical analysis was collected with Nansen bottles. Sampling depths varied according to the temperature profile. When the water was homothermous samples were taken at the surface and bottom, and sometimes at intermediate levels depending on the depth. In areas of thermal stratification, samples were collected at the surface and bottom, and in the vicinity of and below the metalimnion.

Secchi-disc readings, surface-plankton tows, and a sample of bottom fauna were usually taken at each hydrographic station. Bottom fauna samples and bathythermograph casts were usually made in connection with fishing operations.

Bathythermograph casts were made at approximately 5-mile intervals between ports and between fishing and hydrographic stations. After Cruise II, 1953, surface-water samples for chemical analysis were usually collected with each bathythermograph cast. These samples were collected with a clean galvanized bucket that was used for no other purpose, and care was taken in filling sample bottles to avoid contamination.

"Drift cards" (postal reply cards sealed in polyethylene envelopes) were released at a few selected stations during Cruise IV, 1953. Limited studies in Green Bay, Lake Michigan, in 1952 revealed that only a small percentage recovery could be expected, so single releases of about 500 to 1,000 cards were made at one location.

Meteorological conditions were recorded routinely at frequent intervals in the ship's log, and on station log sheets each time a hydrographic or fishing station was visited. Observations included wind direction and velocity, sea state, barometric pressure, sky cover, visibility, and general weather conditions (table 1). Data on wind direction and velocity are approximate, since an anemometer was not used.

Investigations conducted with the Cisco were under the general supervision of James W. Moffett, Chief, and Ralph Hile, Assistant Chief, of the Great Lakes Fishery Investigations, U. S. Fish and Wildlife Service. Vessel operations were supervised by Stanford H. Smith. Paul H. Eschmeyer planned the lake trout study and assisted materially in organizing other phases of the Lake Superior program.

Vernon Seaman served as captain of the Cisco in 1952 and during Cruises I and II, 1953. Leo F. Erkkila acted as captain-biologist in Cruise III, 1953, and Clifford L. Tetzloff served in this capacity during subsequent cruises. Clifford LaLonde was engineer and John Blanchard fisherman-deckhand during the entire operation.

Paul H. Eschmeyer, Stanford H. Smith, and LaRue Wells were in charge of field operations during different cruises. Others who served as scientists aboard the Cisco in Lake Superior were Joseph Beil, Howard Buettner, Daniel Garn, Willis Glidden, Carl Jacoby, and Richard Ryder.

Several people from other organizations gave valuable assistance in addition to undertaking special studies of their own. Russel Daly of the Wisconsin Conservation Department served on the vessel to collect data on smelt of the Apostle Island area during parts of Cruises II and V, 1953. James H. Zumberge (Cruises V and VII, 1953), and James T. Wilson (Cruise VII, 1953) of the Department of Geology, University of Michigan, conducted exploratory core sampling and underwater photography from the Cisco. William Hazen made special plankton collections

during Cruises V and VI, 1953, under the auspices of the Great Lakes Research Institute, University of Michigan.

OPERATIONS OF M/V WILLIAMS

Work in Lake Superior by the U. S. Lake Survey dates back to 1855, when field parties commenced the original hydrographic survey of the lake. The first navigation chart of Lake Superior was published in 1858.

Starting in 1900, hydrographic surveys were performed intermittently as required to keep the charts up to date, to supply detail in the more hazardous places, and to investigate reported dangers to navigation.

In 1929, a survey of the offshore waters of the lake was undertaken with soundings (by line measurements) spaced 3 miles apart. This survey discovered Superior Shoal which is a shallow area with a least depth of 21 feet located in Canadian waters 39 miles south by west from the Slate Islands. When this area was swept for least depth in 1941, four peaks were found in an area of about 2 square miles with 21, 28, 30, and 46 feet of water over them and with relatively deep water between.

A resurvey of the deep water of the lake was commenced in 1956 with recording echo sounders and Shoran, an electronic system for accurately positioning the surveyship the M/V Williams. The sounding lines were spaced 1-1/2 miles apart and all of the deep waters were sounded west of a line from Passage Island through Manitou Island, to Stannard Rock, to Big Bay Point (fig. 4).

The following year, the survey was continued in all the deep waters east of the 1956 work area except for a section 30 miles wide adjacent to the south shore from Marquette to Whitefish Point (fig. 4). Because of the limited range of Shoran, the vast expanse of waters in the eastern portion of the lake made its use impracticable. An Electronic Position Indicator system--commonly known as EPI--which is slightly less accurate but has a much greater range, was loaned to the Lake Survey by the U. S. Coast and Geodetic Survey and used to locate the soundings. The sounding lines were again 1-1/2 miles apart in most of the area covered. A total of 18,540 lineal miles of sounding and 12.3 square miles of sweeping on shoal areas were recorded in these 2 years of operation.

Surface temperature readings have been observed and recorded for many years in conjunction with the sounding operations. The surface temperatures were taken hourly during working hours when the surveyship was under way. In addition, subsurface temperatures, obtained by bathythermograph, were taken in 1956 and 1957 by the M/V Williams. The bathythermograph observations were taken at approximately 2-hour intervals, sea and weather permitting, while the ship was under way along the designated sounding lines (see figs. 5 and 6 for the distribution of these observations). Air temperatures also were recorded each time the water temperature was measured.

The bottom was sampled, primarily to determine the character of the bottom for anchoring, each time the ship was anchored.

Field work still needed to complete the revision of the charts of Lake Superior is as follows: (1) offshore sounding adjacent to the south shore from Marquette to Whitefish Point; (2) inshore sounding, including such sweeping operations as may be required, along selected portions of the American shore of the lake; (3) a complete hydrographic survey of the American waters of Whitefish Bay; (4) survey of an area between Isle Royale and the north-shore mainland.

The 1956 hydrographic survey of Lake Superior, on which Shoran was used for positioning, was conducted by G. P. Schreiber, Civil Engineer, --assisted by 12 others--under the direction of: Colonel E. J. Gallagher, C.E., U. S. Army, District Engineer; W. R. Laidly, Chief Technical Assistant; and G. E. Ropes, Chief, Charting and Geodetic Branch.

In 1957, the EPI-controlled survey in Lake Superior was conducted by F. Wells Robison, Chief, Charting and Geodetic Branch, --assisted by 11 others--under the direction of: Colonel E. J. Gallagher, C. E., U. S. Army, and Colonel E. H. Lang, C.E., U.S. Army,

Figure 4.--Area of operations for the M/V Williams, 1956 and 1957.

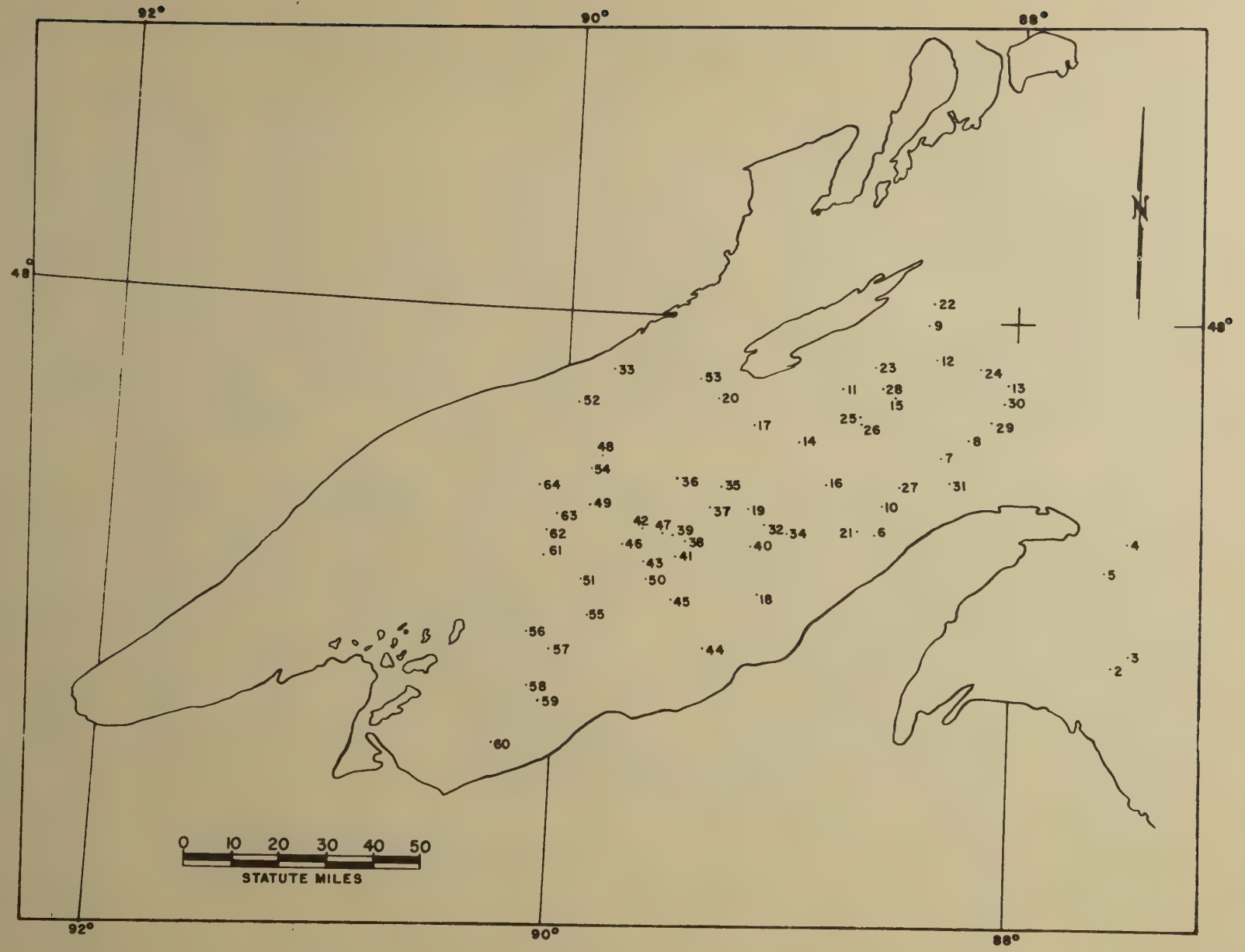

Figure 5.--Bathythermograph stations of the M/V Williams, 1956.

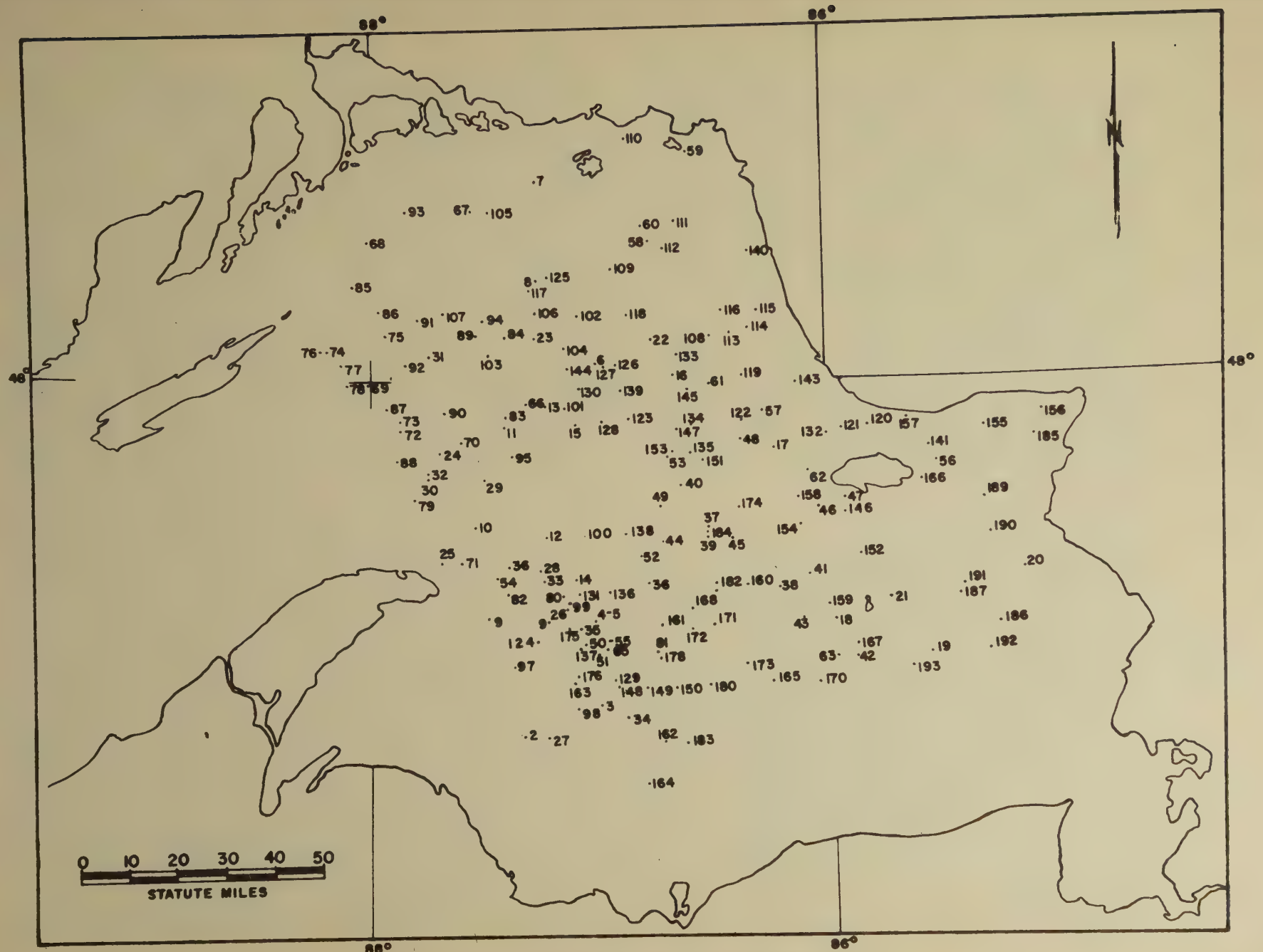

Figure 6.--Bathythermograph stations of the M/V Williams, 1957.

District Engineers; and W. T. Laidly, Chief Technical Assistant.

Constantine Ben assisted in integrating U. S. Lake Survey data with U. S. Fish and Wildlife Service data in this report.

THERMOGRAPH RECORDS

Thermograph data are from instruments installed by the U. S. Fish and Wildlife Service at: the Lake Superior and Ishpeming Railroad ore dock, Marquette, Michigan, in 1951; Stannard Rock lighthouse in 1952; and the wellhouses of the Marquette water plant (1955) and the Calumet and Hecla water plant (1953). All implements were standard Taylor recording thermographs with 7-day spring-driven clocks and stainless-steel thermal elements.

Leo Erkkila, in charge of the sea lamprey control program of the U. S. Fish and Wildlife Service, was responsible for making the installations and supervised the collection of thermograph data.

EXPLANATION OF DATA

Temperature data

Bathythermograph data of the Great Lakes are well suited for presentation in tabular form. Almost without exception the water is nearly homothermous or there is a well-defined metalimnion (the stratum in which the greatest change in the vertical temperature gradient occurs). The temperature traces can be represented with reasonable accuracy by the surface and bottom temperatures under homothermous conditions, and by temperatures at the surface, top and bottom of the metalimnion, and at the bottom when the water is stratified. Oceanographers have not found it practical to present bathythermograph temperatures in tabular form because of the usual lack of well-defined temperature zones and the general variability of temperature gradients.

Temperatures from bathythermograph traces were read from 3- by 5-inch photographic enlargements of the grid and superimposed trace. These prints are on file at the Ann Arbor office of the Great Lakes Fishery Investigations. Values for each bathythermograph were adjusted by the mean deviation of the temperature from the comparable bucket (or sea chest intake) temperature so that values of different instruments and for different cruises would be comparable. Bathythermographs used on the Cisco were calibrated once during each cruise and at the end of the operating season according to a procedure given by U. S. Hydrographic Office Publication No. 607 (1955). The accuracy obtained by this procedure is better than $\pm 0.3°$ C. The reversing thermometers were calibrated by the Engineering Research Institute, University of Michigan. Corrections were only calculated to 0.1° C. Therefore, temperatures taken by these instruments are recorded to the nearest 0.1° C.

Some discrepancy occasionally occurred among reversing thermometer, bathythermograph, and bucket temperatures. There are several explanations for these disagreements: error in depth of reversing thermometers; hysteresis of the bathythermograph; and human errors in reading and recording data. Also, reversing thermometer and bathythermograph lowerings usually were not made simultaneously.

Bathythermograph slides obtained from the U. S. Lake Survey were studied in the same manner as those from the Cisco. The depth range of the Survey bathythermographs was 0-450 feet. Calibrations of the instruments were not made until the close of the 1957 season at which time it was discovered that the bathythermograph used in 1957 functioned improperly below 2.2° C., consequently temperatures below this figure have not been recorded for that year. A few other slides were discarded because the traces had been partially obliterated. The recorded temperatures are probably accurate to $\pm 0.7°$ C.

Thermograph temperatures at the four installations were for the following depths:

Lake Superior and Ishpeming Railroad ore dock	15 feet
Stannard Rock lighthouse	16 feet
Marquette water plant	55 feet
Calumet and Hecla water plant	12 feet

Daily maximum and minimum temperatures were recorded to the nearest °F. These readings were converted to the nearest 0.1° C. in this report. The temperatures given in tables 19-31 can be considered accurate to $\pm 0.5°$ C.

Chemical data

Dissolved oxygen, pH, and some specific conductance determinations were made in the field. Other analyses were made in the laboratory at Ann Arbor, Michigan. A citrate bottle was used in 1952 to keep samples for laboratory analyses. In 1953 water samples for laboratory analysis for each collection were placed in four 4-ounce bottles--2 glass and 2 polyethylene. One each of plastic and glass was frozen. Water for total-phosphorous analysis (unfrozen glass) was preserved with chloroform.

Dissolved oxygen.--The unmodified Winkler method was used. Samples were taken directly from Nansen bottles and fixed immediately.

pH.--Determinations were made with a Hellige color comparator. Samples were taken directly from Nansen bottles and analyzed immediately.

Total alkalinity.--Determinations were by electrometric titration with a Beckman Model G pH meter. A 100-ml sample was titrated with 0.02n H_2SO_4 to the HCO_3 endpoint (pH 4.4). Results are given in ppm of calcium carbonate. Samples collected in citrate bottles were used for this analysis.

Calcium and sodium.--A Beckman DU spectrophotometer with a flame attachment using an oxyacetylene flame was employed for sodium (wave length 589 mμ, slit width 0.2 mm, sensitivity 9) and calcium (wave length 622 mμ, slit width 0.4 mm, sensitivity 9) determinations. Water collected in polyethylene bottles (unfrozen) was used.

Magnesium.--A Fischer AC electrophotometer (3 ml cell and 525 mμ filter) was used for colorimetric magnesium determination (American Public Health Association 1946). A fresh solution of titian-yellow was made up daily. A new standard curve was made each day to give added accuracy. Unfrozen water from polyethylene bottles was used.

Silica.--Determinations were made by the molybdate colorimetric method (American Public Health Association 1946) with a Fischer AC electrophotometer (23 ml cell and 425 mμ filter). Unfrozen water stored in polyethylene bottles was used.

Ammonia nitrogen.--The sample, previously frozen in a polyethylene bottle, was thawed in running water and brought to room temperature. One ml of Nessler reagent was added to 60 ml of the sample in a 150 ml beaker and mixed. After 1/2 hour, color development was measured with a Fischer AC electrophotometer (60 ml cell and 425 mμ filter). Ammonium chloride solution was used as a standard (American Public Health Associates 1946). Tests indicated that various interfering substances were not present in sufficient quantities to make it necessary to follow procedures for their removal (Ellis, Westfall, and Ellis 1948).

Total phosphorous.--Determinations were made by a modification of the method developed by Harvey (1948). A 50 ml portion of the water sample preserved with chloroform in a glass bottle was placed in a 60 ml flask and dried in an oven at 100° C. to facilitate the acid-digestion process. After the addition of 0.5 ml of 40-percent sulfuric acid, the flask, covered with a 30 ml beaker, was placed in an autoclave for 7 hours at 25 pounds pressure. The sample was cooled to room temperature and brought up to 25 ml with double-distilled water, and 1 drop of a solution containing 0.25 gm of stannous chloride and 1 ml of concentrated hydrochloric acid in 10 ml of double-distilled water was added. Maximum color development, taking approximately 5 minutes, was measured by a Fischer AC electrophotometer (23 ml cell and 650 mμ filter). Usually 35 samples were placed in the autoclave at one time, and a series of standards was always included. Values for samples in each batch were determined on the basis of the standards run with them. Molybdate and stannous chloride solutions were made up fresh each day.

Specific conductance.--Resistance measurements (ohms) were made with a glass dip-cell and an Industrial Instruments Type RC-16B-1 conductivity bridge. Values recorded for hydrographic stations are from determinations made aboard the Cisco; all others were made in Ann Arbor on samples from polyethylene bottles. Resistance was converted to specific conductance in mhos/cm x 10^6 at 18°C (K_{18}) by the following formula:

$$K_{18} = \frac{10^6}{R_t\,(1 + c\Delta t)}$$

Where R_t is the measured resistance, c is the temperature coefficient of conductance at t, and Δt the difference in temperature between 18° C. and temperature of test measurement.

The determinations for calcium, magnesium, nitrogen, sodium, phosphorus, and silica content show that not only are the concentrations of the various chemicals very low, but the variation in concentration is slight with time as well as from one area to another. In fact, the ratio of calcium, magnesium, and sodium (12:3:1) varied little among seasons and areas of the lake. Few freshwater lakes have this consistency in chemical content. Concentrations of calcium were so uniform from area to area during most of the year, except spring, that the analyses for this element were of little value for identifying water masses. The same was true in some degree for elements other than phosphorus and specific conductance. Consequently, it was necessary to consider several measurements as well as other factors in identifying water masses.

Concentrations of all chemicals as well as plankton were usually low in the central open-lake area. Waters along the north shore from Isle Royale to Duluth had similar characteristics. This similarity may have been due to a counterclockwise current that carried open-lake water into the western end of the lake (Ruschmeyer, Olson, and Bosch 1957). The phosphorous content of the water increased slightly, but significantly after it had flowed past Duluth. These slightly higher phosphorous concentrations occurred in all of the water samples collected along the south shore from Duluth to the Apostle Islands.

The dry weight of plankton per cubic meter in the Apostle Island region was 4 to 5 times greater than at stations within the western arm of the lake. Perhaps the increase in phosphorous, as well as other nutrients from wastes discharged into the lake near Duluth, was responsible for this greater abundance of plankton.

Plankton data

All of the 1952 and most of the 1953 plankton collections were made by Clarke-Bumpus samplers with No. 10 mesh (aperture 0.158 mm) nets. A few samples were taken in 1953 with No. 20 mesh (aperture 0.076 mm) nets. Horizontal tows usually were made at the surface, although a few were at greater depths. The Clarke-Bumpus samplers were calibrated by towing them a known distance. A few vertical tows were made with a 1/2-meter, No. 20 mesh net in 1953.

The wet volume, and dry, ash, and organic weight were determined for plankton samples collected in 1953. Wet volume was determined by measuring the total volume of the sample and subsequently allowing the plankton in a 10 ml subsample to settle out in a graduated centrifuge tube. The dry, ash, and organic weights of 10 ml portions were obtained by the method described by Welch (1948). The data were multiplied by a factor, determined by the flow of water through the nets, so that all measurements are recorded in milliliters or milligrams per cubic meter of water.

These data have certain limitations that restrict interpretation. Surface tows alone are unreliable for a study of seasonal abundance, and sampling at any one station was not extensive enough to allow suitable comparison of one area with another. Nevertheless, certain conclusions can be drawn which may serve as a guide to future studies in Lake Superior.

If the standing crop of plankton can be considered as indicative of productivity, it may be concluded that the area southeast of the Keweenaw Peninsula and east to Grand Marais, Michigan, is 2 to 3 times more productive than the open-lake area northeast of the Peninsula. Other areas of comparable productivity are the waters of the Apostle Islands and the littoral zone along the northwest shore of the Keweenaw Peninsula.

The dry-weight data for the area southeast of the Keweenaw Peninsula indicate two plankton maxima in this region during 1953, one in early summer and another in early fall. The smallest concentrations occurred in May.

Samples collected at the surface and from various depths at 8 stations showed that during daylight the

maximum concentrations of plankton usually occurred between 9 and 22 meters--2 to 25 times more than at the surface. A few evening collections indicated a reversal of this situation; after sunset, plankton concentrations were greater at the surface than at greater depths.

The high concentrations of plankton among the Apostle Islands, in the littoral current flowing east along the northwest shore of the Keweenaw Peninsula, and immediately east of the Peninsula indicate that the productivity of the area east of the Peninsula may be dependent to a degree upon the nutrients moving in this littoral current from the vicinity of the Apostle Islands.

The relatively high chemical content and plankton concentrations along the south shore east of the Keweenaw Peninsula are evidence of a littoral current flowing easterly. Drift-card returns from this study, as well as those of Ruschmeyer, Olson, and Bosch (1957), suggest that a counterclockwise current usually exists in the eastern basin. Occasionally, open-lake waters may be shifted onto the south shore by appropriate wind action. When this movement occurs a large mass of the littoral water must be carried into the open lake by the counterclockwise current. Movements of this type may account for the occurrence of a water mass with the characteristics of littoral water (higher conductivity and plankton) in midlake at station 78 during Cruise V. This littoral current may continue on to the east shore of Whitefish Bay, since water with similar characteristics was found along this shore.

Drift-card studies

In July 1953, 4,470 drift cards similar to those developed by Olson (1951) were released in the vicinity of the Keweenaw Peninsula and Isle Royale, Michigan (table 8; figs. 7-12). By December 1, 1957, 363 (8.1 percent) of the cards had been returned; 320 (7.2 percent) were returned in 1953.

Nearly all cards that were returned showed some evidence of exposure to moisture and a few were so badly soaked that the cards had disintegrated within the plastic envelopes. That water-filled envelopes do sink was demonstrated by several recoveries from the bottom in the clear water around Isle Royale where cards were retrieved from depths up to 10 feet. It must be assumed, therefore, that many envelopes took on sufficient moisture to sink in areas where they could not be recovered.

A faulty seal on some envelopes contributed to the penetration of water. When envelopes were gently agitated in a "squirrel cage" photographic print washer for several days, some leakage occurred in nearly all of them even though they showed no signs of abrasion. Pinhole perforations around the seal could be detected in envelopes that leaked badly. The abrasion of envelopes reaching shore certainly tended further to aggravate leakage. These factors must have contributed markedly to the relatively low recovery rate.

Drift missiles floating at or near the surface must be influenced predominately by the movement of uppermost water. This layer is in turn strongly affected by the wind, and a good correlation of water movement with wind direction and velocity should be expected. Plastic envelopes used in this study float on the surface film when first released, but tend to drift in the upper 1 or 2 inches of water when the plastic ceases to shed water, or if moisture seeps into the envelope. The tendency to float just below the surface film is increased with increases in wind velocity and wave action. Direct observations and experimental releases of drift cards in 1954 (in Lake Michigan) have demonstrated that, when floating on the surface film, they can be moved rapidly on the surface film by light breezes, and that they can cover considerable distances in a short time under relatively calm conditions.

Wind conditions at Fort William, Ontario, on the north shore of Lake Superior are given in figure 13. The wind track is plotted after the method used by Fry (1956).

The varied influence of winds upon cards in plastic envelopes floating on, in or just below the surface film, and under different sea conditions, undoubtedly was important in dispersing them. The wind must also have affected their speed and direction

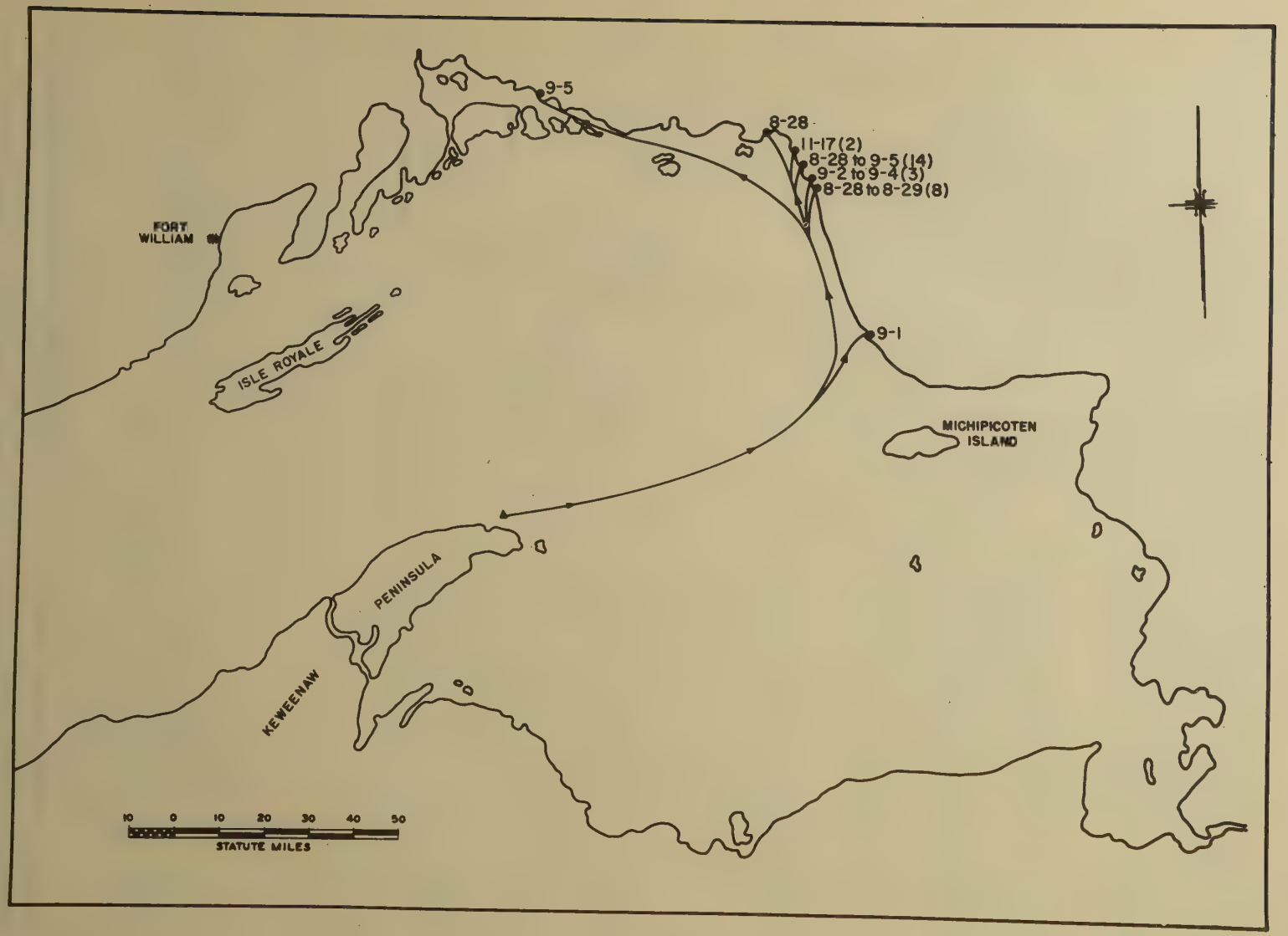

Figure 7.--Recovery points of drift cards released at station 48 on July 3, 1953. Triangle indicates point of release. Solid lines show possible paths of movement and long dashes an alternative path. Numbers beside recovery points show period in which cards were recovered (month and day) in 1953 and number of cards in parentheses. Short dashes show water movements demonstrated by other information (see text).

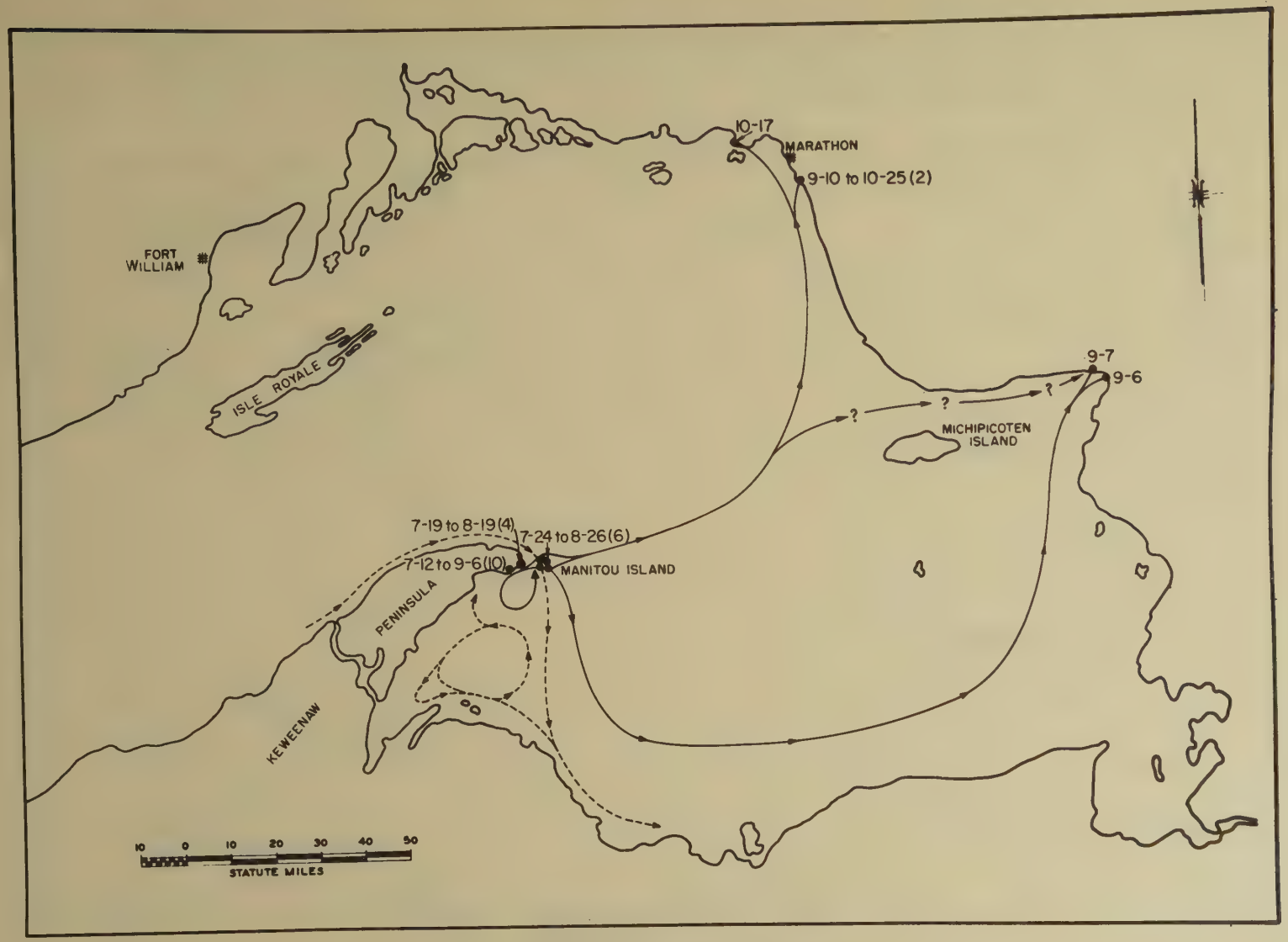

Figure 8. --Recovery points of drift cards released at station 49 on July 4, 1953. Triangle indicates point of release and solid lines show possible paths of movement. Numbers beside recovery points show period in which cards were recovered (month and day) in 1953 and number of cards in parentheses.

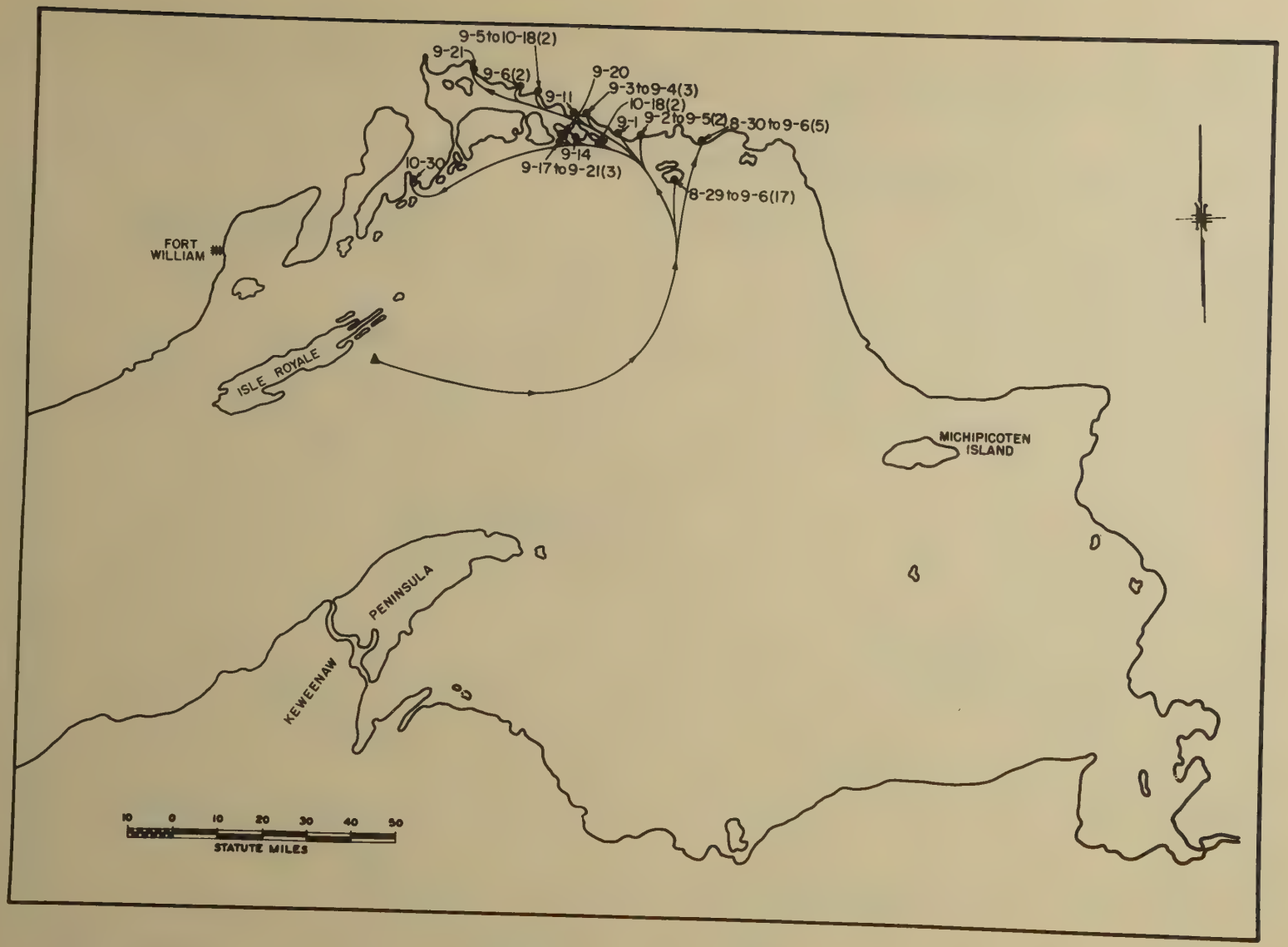

Figure 9. --Recovery points of drift cards released at BT IV-34 on July 4, 1953. Triangle indicates point of release and solid lines show possible paths of movement. Numbers beside recovery points show period in which cards were recovered (month and day) in 1953 and number of cards in parentheses.

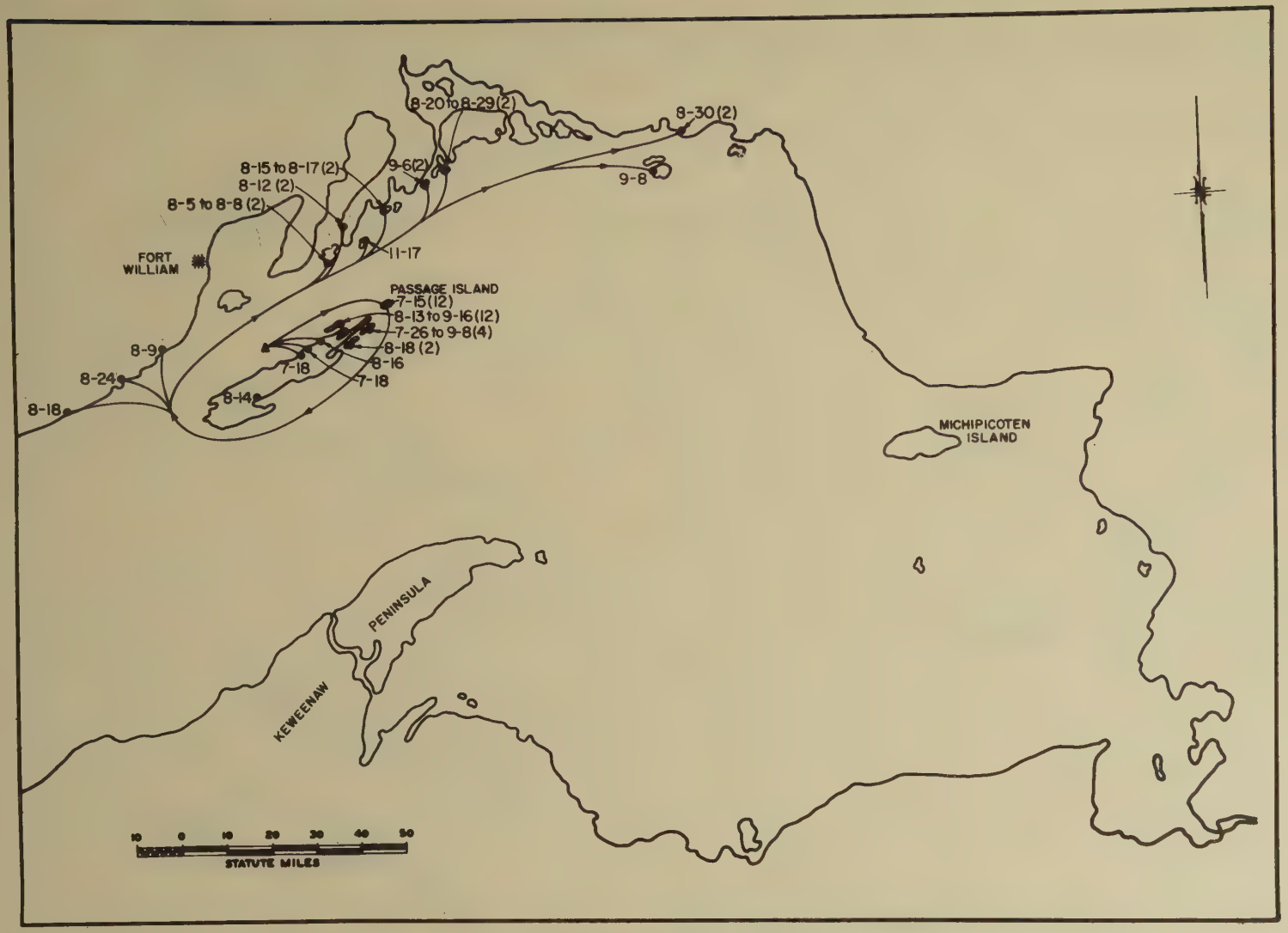

Figure 10.--Recovery points of drift cards released at station 55 on July 6, 1953. Triangle indicates point of release and solid lines show possible paths of movement. Numbers beside recovery points show period in which cards were recovered (month and day) in 1953 and number of cards in parentheses.

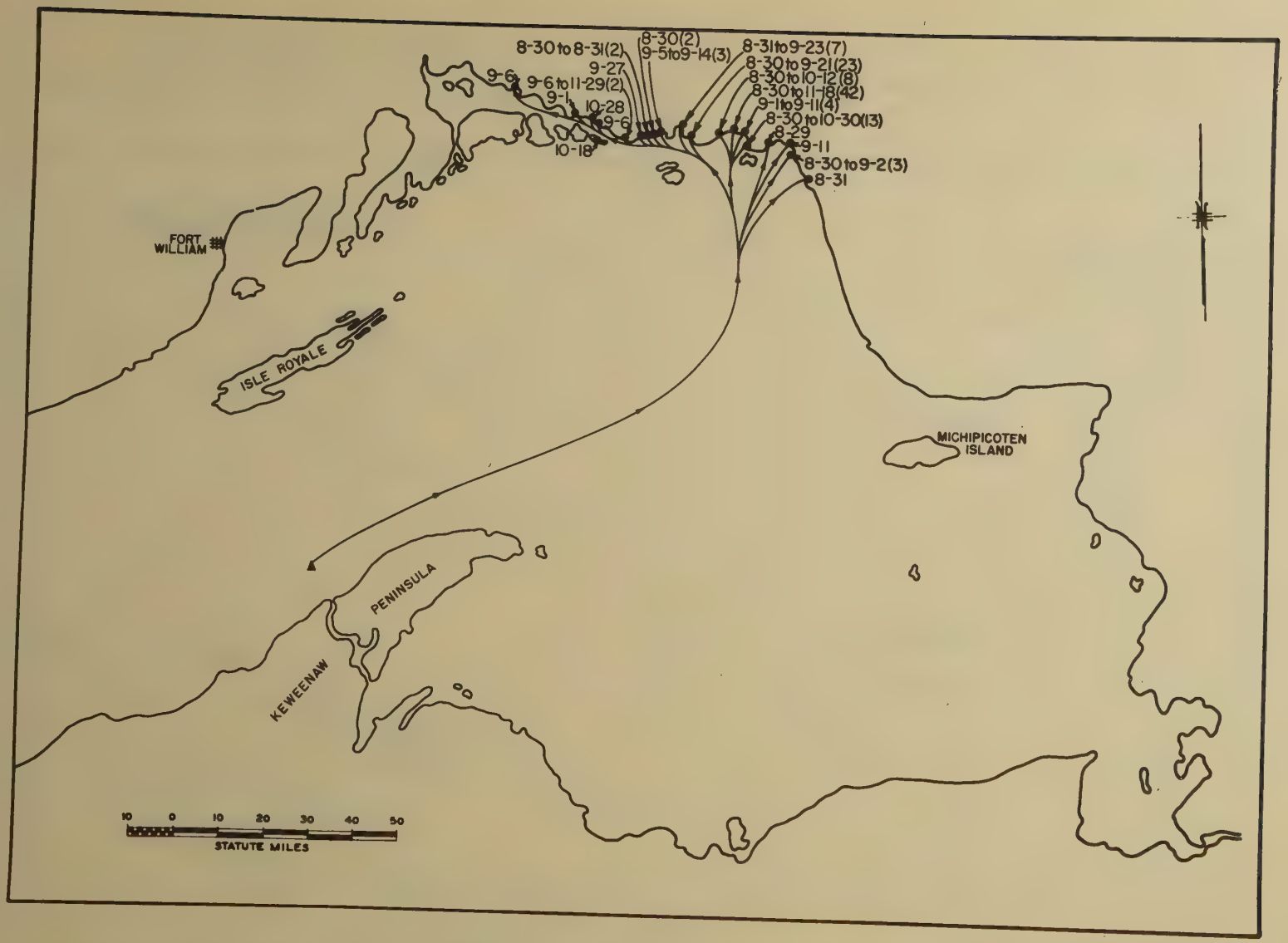

Figure 11. --Recovery points of drift cards released at station 11 on July 7, 1953. Triangle indicates point of release and solid lines show possible paths of movement. Numbers beside recovery points show period in which cards were recovered (month and day) in 1953 and number of cards in parentheses.

Figure 12.--Recovery points of drift cards released at station 4 on July 8, 1953. Triangle indicates point of release and solid lines show possible paths of movement. Numbers beside recovery points show period in which cards were recovered (month and day) in 1953 and number of cards in parentheses.

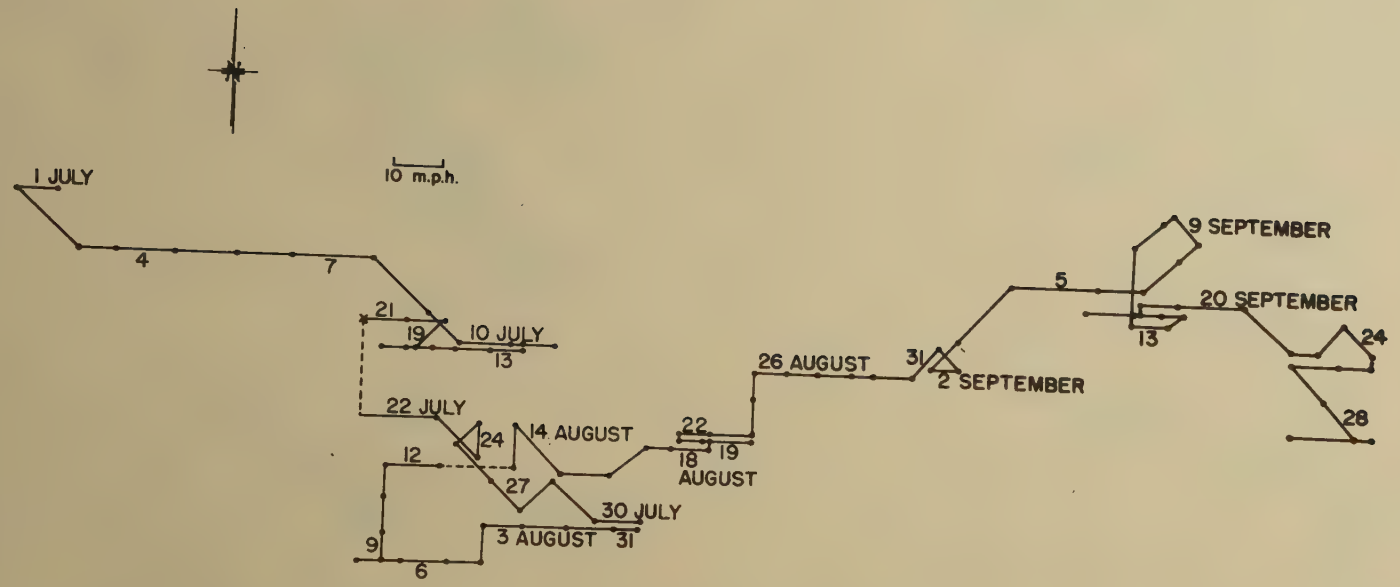

Figure 13.--Wind track based on records at Fort William, Ontario, Canada, July 1 to September 30, 1953.

of travel. In the period shortly following release, cards may have been more responsive to changes in wind direction than to the direction and velocity of surface-water movements. Movements of these cards can therefore be interpreted as only rough approximations of surface-water movements. Despite their shortcomings as current indicators, some speculation may be permitted about the possible circulation patterns that may have influenced the drift of cards between release and recovery points.

Drift cards released at station 4 on July 8, 1953 (fig. 12), were first recovered south of the release point on the west shore of Keweenaw Bay and next on the south shore of the bay. Later recoveries along the south shore of Lake Superior point toward an easterly littoral current in this area as indicated by work of Harrington (1895) and Ruschmeyer, Olson, and Bosch (1957). Subsequent recoveries along the west shore north of the point of release indicate, however, that only a few cards entered this littoral current. This movement verifies the inference of Ruschmeyer, Olson, and Bosch that a fairly well defined current moves south from the tip of the peninsula to the south shore, and that mixing of this current with bay water is limited (their drift bottles moved from the tip of the Keweenaw Peninsula to the south shore but no recoveries were made in Keweenaw Bay). The large number of cards retained within the bay in this study strongly suggest a well defined eddy with a counterclockwise rotation in at least the southern portion of the bay.

Cards released at station 48 on July 3, 1953 (fig. 7), were first recovered 9 days later near the tip of the Keweenaw Peninsula. The short straight-line distance between the points of release and recovery suggests that the cards may have moved in an eddy just southeast of the peninsula's tip for a short time before they were washed ashore. If so, this eddy is probably small and moves in a clockwise direction in conformance with the southward current from the tip of the peninsula (Ruschmeyer, Olson, and Bosch 1957) and the westward movement of water in central Keweenaw Bay (fig. 12) discussed in the preceding paragraph. Subsequent recoveries on all sides of Manitou Island indicate an eddy around the island, and indeed a possible area of mixing with the littoral current flowing eastward off the tip of the Keweenaw Peninsula. Drift bottles carried in this current have been recovered on this island (Ruschmeyer, Olson, and Bosch 1957). Some drift cards, however, crossed this current and entered the circulation of the open lake to be recovered some 2 months after release on the north and east shore of the lake (fig. 7). These cards may have traveled northeast across the lake, and split into two groups west of Michipicoten Island to give the widely separated recovery locations near Marathon and Michipicoten, Ontario. It is possible, however, that the cards that landed near Michipicoten were part of a group carried in the current flowing south from the tip of the Keweenaw Peninsula and that they moved to their recovery point in the counterclockwise flow of the eastern basin of the lake.

Drift cards were released in the open lake between the Keweenaw Peninsula and Isle Royale at BT cast IV-34 and stations 11 and 49 on July 4 and 7, 1953 (figs. 8, 9, 11). On the dates of release, stations 11 and 49 were outside the littoral current that flows easterly along the north shore of the Keweenaw Peninsula. The recovery of cards from all of those releases exclusively along the north-central shore of the lake reflects a possible counterclockwise circulation within the north-central basin during the period of this study. If the circulation in the central and eastern basins during this period had made up a single massive eddy, as suggested by Harrington's (1895) work, at least some of the drift cards would have been carried into the eastern basin.

Cards released near the tip of the Keweenaw Peninsula (station 49, fig. 8) were apparently influenced by the outer edge of a water mass rotating counterclockwise in the north-central basin. This influence would account for the returns along the northeast shore of the central basin. Cards released with BT cast IV-34 (fig. 9) and at station 11 (fig. 11) appear to have entered this circulation and were more widely dispersed before they came ashore. Earliest recovery dates for both of these releases were nearly the same over the entire area where they came to shore. Recovery dates of cards released with BT cast IV-34 do, however, show a slight progression from east to west.

Drift cards released at station 55 (fig. 10) between Isle Royale and Ontario were recovered on both the north and south shores of the Island, and a good number (12 cards) were recovered 9 days after release on Passage Island just off the northeast tip of Isle Royale. This recovery pattern indicates that the cards moved northeast along the shore of Isle Royale after release. Returns from shore near the point of release can be termed relatively prompt when we consider that the island is only sparsely inhabited by fishermen and tourists during the summer. Recoveries on the southeast shore indicate that at least some of the cards moved around the island in a clockwise direction. Cards that landed on the north shore of Lake Superior adjacent to the southwest end of Isle Royale may have been among those that moved around the island. The cards recovered along the north shore of Lake Superior east of the eastern tip of Isle Royale could have moved around the island or they could have separated from the group circling the island and entered the open-lake circulation before coming to shore. The earliest dates of recovery of these cards from different areas along the north shore suggest a west-to-east drift; the direction of movement indicates that they may have circled the island. This last indication is opposed to that suggested by recoveries of cards released with BT cast IV-34. The areas of recovery do not overlap broadly, however, and recoveries of cards released with BT cast IV-34 were mostly made 2 to 3 weeks later than those of cards released at station 55. The counterclockwise movement of water around Isle Royale is exactly opposite water movements suggested by Harrington (1895).

The known limitations of drift cards as current indicators prohibit their use in speculating too extensively about general patterns of circulation. In fact, some recent work has demonstrated that surface circulation systems of the Great Lakes can change markedly in a relatively short time (Johnson, in press).

EXPLANATION OF TABLES

All data presented in this report are actual measurements--no interpolated values are included. Values which were obviously incorrect because of instrument failure or human error have been omitted.

Physical

Cruise number. Cruises are indicated by roman numerals (Cruise VI of 1952 and Cruises I-IX of 1953).

Station number. Stations are numbered consecutively (arabic numerals), starting with one at the beginning of the season's operations. The majority of the 1952 stations were not visited in 1953. When a 1952 station was visited in 1953, it was given a new number.

Date. Month, day, and year are given in each table.

Location. The position of any activity is given in degrees, minutes, and seconds of Latitude (north) and Longitude (west) for Cisco records and in degrees and minutes for Williams records.

Time. Eastern standard time at the initiation of bathythermograph cast; when the Cisco stopped for a hydrographic station; or at the beginning of a plankton tow.

Depth. All depths, except those recorded in fathoms by a sonic fathometer, are recorded in meters.

Wind. Cisco records: approximate force is given in descriptive terms; calm, light, ... Direction is recorded for 8 compass points (table 1). Williams records: force is given in descriptive terms; direction is given for 32 points of the compass; if wind direction changed frequently, it was listed as variable.

Barometer. The barometric pressure, corrected to sea level, is given in inches to two decimal places.

Sky. Cisco records: amount of cloud cover is recorded in descriptive terms; clear, overcast 1/4, overcast 1/2, overcast 3/4, and overcast 1. Cloud type is also recorded. Williams records: coded as as indicated in table 16.

Visibility. Cisco records: visibility is given in descriptive terms (table 1). Williams records: coded as indicated in table 16.

Sea. Cisco records: the approximate amounts of swell and/or waves are given in descriptive terms; calm, gentle,•••. (table 1). Williams records: coded as indicated in table 16.

Secchi disc. The maximum depth at which the Secchi disc was visible is recorded in meters. Actual measurements were made with a chain calibrated in feet.

Bottom. The bottom type as determined from dredge samples is recorded in descriptive terms; silt, mud, clay, sand, gravel, and rock.

Bathythermograph number. Bathythermograph tracings were numbered consecutively (arabic numerals) starting with one at the beginning of each cruise of the Cisco. They were numbered consecutively from the first of the operating season on the Williams.

Temperature. All temperatures are Centigrade and recorded to the nearest 0.1°.

Chemical

pH. Hydrogen-ion concentration expressed as pH values to one decimal place.

Specific conductance. Specific conductance is given in mhos/cm x 10^6 at 18° C. ($K_{18} \times 10^6$).

Dissolved oxygen. Values are in parts per million to one decimal place.

Total alkalinity. Values are in parts per million to one decimal place, in terms of calcium carbonate.

Calcium. Values are in parts per million to one decimal place.

Magnesium. Values are in parts per million to one decimal place.

Sodium. Values are in parts per million to nearest 0.05.

Silica. Values are to the nearest part per million.

Dissolved nitrogen. These values are for ammonia nitrogen, given as parts per million to two decimal places.

Total phosphorous. Values are recorded to the nearest part per billion. Tr means trace.

Biological

Procedures for determination of the following categories are given under the explanation of data.

Wet volume. The wet volume of plankton is given in milliliters per cubic meter to three decimal places. Large organisms occurred in the samples only occasionally so that the volumes represent smaller organisms.

Dry weight. The dry weight of plankton is given in milligrams per cubic meter.

Ash content. Weight of the sample after the organic content has been burned; given in milligrams per cubic meter.

Organic content. Difference between dry weight and ash weight; given in milligrams per cubic meter.

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Table 1.--Hydrographic and meteorologic terminology (Cisco)

Sea state		Visibility		Wind force	
Description	Approximate height (feet)	Description	Extent in miles	Description	Miles per hour
Calm	0	Zero	Less than 1/8	Calm	Less than 1
Gentle	Less than 2	Poor	1/8 to 1	Light	1 to 5
Choppy	2 to 4	Fair	1 to 5	Gentle	6 to 11
Moderate	4 to 6	Good	5 to 15	Moderate	12 to 17
Rough	6 to 8	Perfect	15 and over	Fresh	18 to 24
Heavy	8 and over			Strong	25 to 38
				Gale	39 to 54
				Whole gale	55 to 74

Table 2.--Station location and list of activities at station, cruise VI, 1952 (Cisco)

Station number	Month and day	Latitude (North)	Longitude (West)	Temperature			Bottom sample		Fishing		Plankton		Chemical sample	Secchi disc
				Bathythermograph	Reversing thermometer	Resistance thermometer	Petersen dredge	Orange-peel dredge	Trawl	Gill nets	1/2-meter net	Clarke-Bumpus sampler		
1	8/13	46°37'50"	84°50'45"	x	x	-	x	-	-	-	-	x	x	x
2	8/13	46°48'00"	85°32'15"	x	x	-	-	x	-	-	-	x	x	x
3	8/13	46°44'06"	85°59'00"	x	-	-	-	-	-	x	-	-	-	-
3	8/14	46°44'06"	85°59'00"	x	-	-	-	x	x	-	-	-	-	-
4	8/14	46°43'30"	86°04'25"	x	-	-	-	x	x	-	-	-	-	-
5	8/14	46°43'45"	86°23'50"	x	x	-	-	x	-	-	-	x	x	-
6	8/14	46°33'45"	86°37'45"	-	-	-	-	-	-	x	-	-	-	-
6	8/15	46°33'45"	86°37'45"	x	-	-	x	x	-	x	-	-	-	-
7	8/15	46°40'05"	86°56'25"	x	x	-	x	-	-	-	-	x	x	-
8	8/15	46°35'20"	86°58'20"	x	-	-	x	-	x	-	-	x	-	-
8	8/27	46°35'20"	86°58'20"	x	x	-	x	-	x	-	-	x	x	-
9	8/16	47°03'00"	88°04'55"	x	-	-	x	-	x	-	-	x	x	-
10	8/16	47°03'55"	88°19'00"	-	-	-	x	-	x	-	-	-	-	-
10	8/24	47°03'55"	88°19'00"	-	-	-	-	-	x	-	-	-	-	-
10	8/25	47°03'55"	88°19'00"	-	x	-	x	-	x	-	-	x	x	x
11	8/17	47°26'30"	88°49'00"	x	x	-	x	-	-	-	-	x	x	-
12	8/17	47°39'45"	89°02'30"	-	-	-	x	-	x	-	-	-	-	-
13	8/17	47°15'45"	89°06'00"	x	x	-	x	-	-	-	-	x	x	-
14	8/17	47°18'10"	89°06'00"	-	-	-	x	-	x	-	-	-	-	-
15	8/18	47°55'30"	89°20'20"	x	x	-	x	-	-	-	-	x	x	x
16	8/18	47°36'30"	89°37'00"	x	x	-	x	-	-	-	-	x	x	x
17	8/18	47°13'10"	89°40'50"	x	x	-	x	-	-	-	-	x	x	-
18	8/19	47°01'15"	89°44'30"	x	-	-	x	x	-	-	-	x	x	-
19	8/19	47°17'50"	89°51'45"	x	x	-	x	x	-	-	-	x	x	x
20	8/19	47°21'20"	90°04'30"	x	x	-	x	-	-	-	-	x	x	-
21	8/20	47°30'10"	90°26'00"	x	-	-	x	-	-	-	-	x	x	x
22	8/20	47°09'15"	90°30'00"	x	x	-	-	x	x	-	-	x	x	x
23	8/20	46°52'00"	90°34'30"	x	-	-	x	-	x	x	-	-	-	-
23	8/21	46°52'00"	90°34'30"	-	-	-	-	-	-	x	-	-	-	-
24	8/21	46°49'00"	90°48'45"	x	-	-	x	-	x	-	-	-	-	-
25	8/21	46°45'45"	90°50'35"	-	-	-	x	-	x	-	-	-	-	-
26	8/22	46°55'55"	90°40'30"	x	x	-	x	-	-	-	-	x	x	-
27	8/22	47°06'40"	90°07'00"	x	x	-	x	-	-	-	-	x	x	-
28	8/22	47°24'35"	89°31'30"	x	x	-	x	-	-	-	-	x	x	x
29	8/23	48°05'00"	88°31'30"	x	x	-	x	-	-	-	-	x	x	-
30	8/23	47°50'30"	88°18'40"	x	x	-	x	-	-	-	-	x	x	-

Table 2.--Station location and list of activities at station, cruise VI, 1952 (Cisco) (cont'd)

Station number	Month and day	Latitude (North)	Longitude (West)	Temperature			Bottom sample		Fishing		Plankton		Chemical sample	Secchi disc
				Bathythermograph	Reversing thermometer	Resistance thermometer	Petersen dredge	Orange-peel dredge	Trawl	Gill nets	1/2-meter net	Clarke-Bumpus sampler		
31	8/23	47°31'40"	87°58'50"	x	x	-	x	-	x	-	-	x	x	x
32	8/23	47°29'30"	87°47'30"	-	-	-	-	-	-	x	-	-	-	-
32	8/24	47°29'30"	87°47'30"	x	-	-	x	-	-	x	-	-	-	-
33	8/24	47°10'15"	88°09'55"	x	-	-	-	x	x	-	-	-	-	-
34	8/25	46°52'55"	88°21'25"	x	-	-	x	-	x	x	-	-	-	-
34	8/26	46°52'55"	88°21'25"	-	-	-	-	-	-	x	-	-	-	-
35	8/26	46°54'55"	87°49'55"	x	-	-	x	-	x	-	-	-	-	-

Table 3.--Station location and list of activities at station, 1953 (Cisco)

Station (arabic) and cruise (roman) number	Month and day	Latitude (North)	Longitude (West)	Temperature			Bottom sample		Fishing		Plankton		Chemical sample	Secchi disc
				Bathythermograph	Reversing thermometer	Resistance thermometer	Petersen dredge	Orange-peel dredge	Trawl	Gill nets	1/2-meter net	Clarke-Bumpus sampler		
Station 1														
I	5/5	46°31'25"	86°56'10"	x	x	x	x	-	x	-	-	x	x	-
III	6/12	46°31'45"	86°56'10"	x	-	-	x	-	x	-	-	x	-	-
III	6/22	"	"	x	-	-	x	-	x	-	-	x	-	-
III	6/23	46°31'15"	86°56'30"	x	-	-	x	-	x	-	-	x	x	x
IV	7/13	46°31'10"	86°55'50"	x	x	-	x	x	x	-	-	x	x	-
V	7/22	46°31'20"	86°55'50"	x	x	-	x	-	x	-	-	x	x	-
VI	8/12	46°31'20"	86°55'30"	x	x	x	-	x	x	x	-	x	x	x
VI	8/24	"	"	x	x	x	-	x	x	-	-	x	x	x
VII	9/14	"	"	x	-	x	-	x	x	-	-	-	-	-
VIII	10/5	"	"	-	-	-	-	-	x	-	-	-	-	-
IX	10/21	"	"	x	-	x	-	-	x	-	-	-	-	-
IX	10/22	"	"	-	-	-	-	-	x	-	-	-	-	-
Station 2														
I	5/6	46°54'20"	87°37'00"	x	x	-	x	-	-	-	-	x	x	-
II	5/22	46°54'20"	87°35'00"	x	-	-	x	-	-	-	-	x	x	-
II	6/1	"	"	x	-	-	x	-	-	-	-	x	x	-
IV	7/12	"	"	x	x	-	x	-	-	-	-	x	x	-
VII	9/2	46°54'20"	87°37'00"	x	x	x	x	-	-	-	-	x	x	-
VII	9/11	"	"	x	x	x	-	x	-	-	-	x	x	x
VIII	10/4	"	"	x	x	x	x	-	-	-	-	x	x	-
IX	10/14	"	"	x	x	x	x	-	-	-	-	x	x	x
Station 3														
I	5/6	47°02'15"	88°11'00"	x	-	-	-	-	-	x	-	-	-	-
I	5/7	"	"	x	x	-	x	-	-	x	-	x	x	-
I	5/7	"	"	-	-	-	-	-	-	x	-	-	-	-
I	5/8	"	"	x	-	-	-	-	-	x	-	-	-	-
I	5/8	"	"	x	-	-	-	-	-	x	-	-	-	-
I	5/9	"	"	-	-	-	-	-	-	x	-	-	-	-
Station 4														
I	5/6	47°03'00"	88°20'45"	x	-	-	-	-	-	x	-	-	-	-
I	5/7	"	"	x	x	-	x	-	-	x	-	x	x	-
I	5/9	"	"	-	-	-	-	-	x	-	-	-	-	-
IV	7/8	47°03'25"	88°19'40"	x	x	-	x	-	x	x	-	x	x	-

Table 3.--Station location and list of activities at station, 1953 (Cisco) (cont'd)

Station (arabic) and cruise (roman) number	Month and day	Latitude (North)	Longitude (West)	Temperature			Bottom sample		Fishing		Plankton		Chemical sample	Secchi disc
				Bathythermograph	Reversing thermometer	Resistance thermometer	Petersen dredge	Orange-peel dredge	Trawl	Gill nets	1/2-meter net	Clarke-Bumpus sampler		
IV	7/9	47°03'25"	88°19'40"	x	-	-	-	-	-	x	-	-	-	-
V	7/24	47°04'00"	88°20'00"	x	x	-	x	-	-	x	-	x	x	-
V	8/3	"	"	x	-	x	-	-	x	-	-	-	-	-
VII	9/5	"	"	x	-	x	-	-	x	-	-	-	-	-
VII	9/9	47°03'25"	88°19'40"	x	-	x	-	-	x	-	-	-	-	-
VIII	10/3	"	"	x	-	x	x	-	x	-	-	x	x	-
Station 5														
I	5/7	47°05'30"	88°09'50"	x	-	-	-	-	-	x	-	-	-	-
I	5/8	"	"	x	x	-	x	-	-	x	-	x	x	-
Station 6														
I	5/7	47°05'30"	88°10'00"	-	-	-	x	-	x	-	-	-	-	-
Station 7														
I	5/8	47°00'25"	88°09'35"	-	-	-	-	-	-	x	-	-	-	-
I	5/9	"	"	x	-	-	x	-	-	x	-	x	x	-
Station 8														
I	5/10	47°00'35"	88°15'05"	x	-	-	x	-	x	-	-	-	-	-
Station 9														
I	5/11	46°48'21"	88°26'55"	x	-	-	x	-	x	-	-	x	x	-
I	5/12	"	"	x	-	x	-	-	x	-	-	-	-	-
IV	7/11	46°48'20"	88°26'55"	-	-	-	-	-	x	-	-	-	-	-
V	8/2	"	"	x	-	x	-	-	x	-	-	-	-	-
VII	9/11	"	"	x	-	x	-	-	x	-	-	-	-	-
VIII	10/2	46°48'21"	88°26'55"	x	-	x	x	-	x	-	-	-	-	-
IX	10/15	46°48'20"	88°26'55"	x	-	x	-	-	x	x	-	-	-	-
IX	10/16	"	"	x	-	-	x	-	-	x	-	x	x	-
Station 10														
II	5/22	47°03'30"	88°30'00"	-	-	-	-	-	x	-	-	-	-	-
IV	7/9	47°04'12"	88°29'25"	-	-	-	-	-	x	-	-	-	-	-
IV	7/10	"	"	x	-	-	x	-	x	-	-	x	x	-
VII	9/4	"	"	x	x	x	-	x	x	-	-	x	x	-
VIII	9/27	47°03'30"	88°30'00"	x	x	x	-	x	x	-	-	x	x	-

Table 3.--Station location and list of activities at station, 1953 (Cisco) (cont'd)

Station (arabic) and cruise (roman) number	Month and day	Latitude (North)	Longitude (West)	Temperature			Bottom sample		Fishing		Plankton		Chemical sample	Secchi disc
				Bathythermograph	Reversing thermometer	Resistance thermometer	Petersen dredge	Orange-peel dredge	Trawl	Gill nets	1/2-meter net	Clarke-Bumpus sampler		
Station 11														
II	5/23	47°21'10"	88°44'30"	x	x	-	x	-	-	-	-	x	x	-
V	7/25	47°21'30"	88°45'30"	x	-	-	x	x	-	-	x	x	x	-
VIII	10/1	47°21'10"	88°44'30"	x	x	x	-	x	-	-	-	x	x	x
Station 12														
II	5/23	47°35'30"	88°59'20"	x	x	-	x	-	-	-	-	x	x	-
V	7/25	"	"	x	x	-	-	x	-	-	-	-	x	-
VII	9/8	"	"	x	x	x	-	x	-	-	-	x	x	x
VIII	10/1	"	"	x	x	x	-	x	-	-	-	x	x	-
Station 13														
II	5/23	47°48'10"	89°13'00"	x	x	-	x	-	-	x	-	x	x	-
II	5/24	"	"	x	-	-	-	-	x	x	-	-	-	-
Station 14														
II	5/24	47°44'50"	89°38'50"	x	-	-	x	-	-	-	-	x	x	x
Station 15														
II	5/24	47°41'10"	90°03'15"	x	x	-	x	-	-	-	-	x	x	-
V	7/26	47°43'30"	90°01'40"	x	-	-	x	-	-	-	-	x	x	-
Station 16														
II	5/24	47°44'30"	90°18'35"	x	-	-	-	-	-	x	-	-	-	-
II	5/25	"	"	-	-	x	-	-	-	x	-	-	x	-
V	7/27	47°43'50"	90°18'15"	x	-	-	-	x	-	x	x	x	x	-
Station 17														
II	5/26	46°59'45"	91°39'15"	x	-	-	x	-	-	x	-	x	x	x
II	5/27	"	"	-	-	-	-	-	x	x	-	-	-	-
Station 18														
II	5/27	46°58'15"	91°39'05"	x	x	-	x	-	x	-	-	x	x	x
Station 19														
II	5/27	46°52'15"	91°30'00"	x	x	-	x	-	x	-	-	x	x	x
Station 20														
II	5/28	47°00'30"	90°47'50"	-	-	-	x	-	x	-	-	x	x	x
V	7/28	47°00'45"	90°47'35"	x	-	x	-	-	x	-	-	-	-	-

Table 3.--Station location and list of station activities, 1953 (Cisco) (cont'd)

Station (arabic) and cruise (roman) number	Month and day	Latitude (North)	Longitude (West)	Temperature			Bottom sample		Fishing		Plankton		Chemical sample	Secchi disc
				Bathythermograph	Reversing thermometer	Resistance thermometer	Petersen dredge	Orange-peel dredge	Trawl	Gill nets	1/2-meter net	Clarke-Bumpus sampler		
Station 21														
II	5/29	46°49'20"	90°47'25"	x	-	-	x	-	-	x	-	x	x	x
II	5/30	"	"	x	-	-	-	-	x	x	-	-	x	-
V	7/28	"	"	-	-	-	-	-	-	x	-	-	-	-
V	7/30	"	"	x	x	x	x	-	-	-	-	x	x	-
Station 22														
II	5/29	46°41'45"	90°50'15"	x	-	-	1/ x	-	x	-	-	-	-	-
V	7/30	"	"	-	-	-	-	-	x	-	-	-	-	-
Station 23														
II	5/29	46°46'50"	90°49'15"	x	-	-	-	-	x	-	-	-	-	-
V	7/30	"	"	x	-	x	x	-	x	-	-	-	-	-
Station 24														
II	5/30	46°54'15"	90°35'30"	x	-	-	x	-	x	-	-	x	x	x
Station 25														
II	5/30	46°54'10"	90°44'45"	-	-	-	-	-	x	-	-	-	-	-
Station 26														
II	5/30	46°51'50"	90°45'30"	-	-	-	-	-	x	-	-	-	-	-
Station 27														
II	5/31	46°54'20"	89°21'45"	-	-	-	x	-	-	x	-	x	x	x
II	6/1	"	"	x	-	-	-	-	-	x	-	-	-	-
V	7/31	46°54'20"	89°21'45"	x	x	x	x	-	-	x	-	x	x	-
Station 28														
II	6/1	47°05'45"	88°59'30"	x	-	-	x	-	-	-	-	x	x	x
Station 29														
III	6/11	46°31'40"	87°07'35"	x	-	-	-	-	x	x	-	-	-	-
III	6/12	"	"	x	-	-	x	-	-	x	-	x	x	-
Station 30														
III	6/12	46°34'25"	87°02'20"	x	-	-	x	-	-	x	-	-	-	-
Station 31														
III	6/13	46°40'12"	86°54'47"	x	x	-	x	-	-	-	-	x	x	x
Station 32														
III	6/13	46°35'00"	86°36'10"	x	-	-	x	-	-	x	-	-	-	-

1/ Ekman sampler

Table 3.--Station location and list of activities at station, 1953 (Cisco) (cont'd)

Station (arabic) and cruise (roman) number	Month and day	Latitude (North)	Longitude (West)	Temperature			Bottom sample		Fishing		Plankton		Chemical sample	Secchi disc
				Bathythermograph	Reversing thermometer	Resistance thermometer	Petersen dredge	Orange-peel dredge	Trawl	Gill nets	1/2-meter net	Clarke-Bumpus sampler		
Station 33														
III	6/13	46°31'25"	86°35'35"	x	-	-	x	-	-	x	-	-	-	-
Station 34														
III	6/14	46°39'20"	86°13'45"	x	x	x	x	-	x	-	-	x	x	-
Station 35														
III	6/15	46°45'05"	86°02'35"	x	x	x	x	-	-	x	-	x	x	x
Station 36														
III	6/15	46°43'50"	86°23'00"	x	x	x	x	-	-	-	-	x	x	x
Station 37														
III	6/16	46°38'35"	86°40'35"	x	x	x	x	-	-	x	-	x	x	-
Station 38														
III	6/17	46°26'50"	86°37'45"	x	x	-	x	-	x	x	-	x	x	x
III	6/18	"	"	-	-	x	-	-	x	-	-	-	-	-
III	6/21	"	"	-	-	-	-	-	x	-	-	-	-	-
Station 39														
III	6/18	46°33'40"	86°48'05"	x	-	-	x	-	x	-	-	-	-	-
Station 40														
III	6/18	46°31'17"	86°33'20"	x	-	-	x	-	-	x	-	-	-	-
Station 41														
III	6/21	46°40'25"	85°57'30"	x	-	-	x	-	-	-	-	x	x	-
Station 42														
III	6/21	46°28'40"	86°38'00"	-	-	-	x	-	x	-	-	-	-	-
Station 43														
IV	7/1	46°37'25"	87°25'40"	x	-	-	x	-	-	x	-	x	x	-
VIII	10/4	"	"	x	-	x	x	-	-	-	-	x	x	x
IX	10/16	"	"	x	-	x	-	-	-	x	-	-	-	-
IX	10/17	"	"	x	-	x	-	-	-	x	-	-	-	-
IX	10/18	"	"	x	-	x	-	-	-	x	-	-	-	-
IX	10/19	"	"	x	-	x	-	-	-	x	-	-	-	-
IX	10/20	"	"	x	-	x	-	-	-	x	-	-	-	-

Table 3. --Station location and list of activities at station, 1953 (Cisco) (cont'd)

Station (arabic) and cruise (roman) number	Month and day	Latitude (North)	Longitude (West)	Temperature			Bottom sample		Fishing		Plankton		Chemical sample	Secchi disc
				Bathythermograph	Reversing thermometer	Resistance thermometer	Petersen dredge	Orange-peel dredge	Trawl	Gill nets	1/2-meter net	Clarke-Bumpus sampler		
Station 44														
IV	7/2	46°33'25"	87°21'00"	x	-	-	x	-	-	x	-	x	x	-
IV	7/3	"	"	x	-	-	-	-	-	x	x	-	-	-
Station 45														
IV	7/3	46°43'40"	87°22'55"	x	x	-	x	-	-	-	-	x	x	-
Station 46														
IV	7/3	46°53'35"	87°27'10"	x	-	-	-	x	-	-	-	x	x	x
Station 47														
IV	7/3	47°12'40"	87°35'40"	x	x	-	-	x	-	-	-	x	x	x
Station 48														
IV	7/3	47°22'00"	87°39'35"	x	x	-	-	x	-	-	-	x	x	x
Station 49														
IV	7/3	47°29'30"	87°47'10"	x	-	-	-	-	-	x	-	-	-	-
IV	7/4	"	"	x	x	-	-	x	-	x	-	x	x	-
Station 50														
IV	7/4	47°55'00"	88°20'00"	x	x	-	-	x	-	-	-	x	x	-
Station 51														
IV	7/4	48°04'15"	88°33'20"	x	-	-	-	-	-	x	-	-	-	-
IV	7/5	"	"	x	x	-	-	x	-	x	-	x	x	-
Station 52														
IV	7/5	47°57'25"	88°47'20"	x	x	-	-	x	x	-	-	x	x	-
VII	9/7	"	"	x	x	x	-	x	x	-	-	x	x	x
Station 53														
IV	7/5	47°54'40"	88°53'00"	x	-	-	-	-	x	-	-	-	-	-
VII	9/7	47°54'30"	88°54'20"	x	-	x	-	-	x	-	-	-	x	-
Station 54														
IV	7/5	47°54'30"	89°10'05"	-	-	-	-	-	-	x	-	-	-	-
Station 55														
IV	7/6	48°04'20"	88°56'20"	x	x	-	-	x	-	-	-	x	x	-
Station 56														
IV	7/8	46°59'30"	88°22'00"	x	-	-	x	-	x	-	-	x	x	-

Table 3.--Station location and list of activities at station, 1953 (Cisco) (cont'd)

Station (arabic) and cruise (roman) number	Month and day	Latitude (North)	Longitude (West)	Temperature			Bottom sample		Fishing		Plankton		Chemical sample	Secchi disc
				Bathythermograph	Reversing thermometer	Resistance thermometer	Petersen dredge	Orange-peel dredge	Trawl	Gill nets	1/2-meter net	Clarke-Bumpus sampler		
Station 57														
IV	7/9	47°12'30"	88°08'00"	x	-	-	x	-	x	-	-	x	x	-
VII	9/9	"	"	x	-	x	-	x	x	-	-	-	-	-
Station 58														
IV	7/10	47°15'55"	88°35'40"	x	-	-	-	x	x	-	-	x	x	-
Station 59														
IV	7/11	46°53'30"	88°21'35"	x	x	-	-	x	x	-	-	x	x	-
VII	9/10	"	"	x	-	x	-	-	x	-	-	-	-	-
VIII	10/2	"	"	x	-	x	x	-	x	-	-	-	-	-
Station 60														
IV	7/11	46°54'24"	88°21'50"	x	x	-	-	-	x	-	-	x	x	-
Station 61														
IV	7/11	46°49'20"	88°27'30"	-	x	-	x	-	x	x	-	x	x	-
V	8/2	"	"	x	x	x	x	-	x	-	-	x	x	-
VII	9/11	"	"	x	-	x	-	-	x	-	-	-	-	-
VIII	10/2	"	"	x	-	x	x	-	x	x	-	x	x	x
VIII	10/3	"	"	x	-	x	-	-	x	x	-	-	-	-
IX	10/15	"	"	x	-	x	-	-	x	-	-	-	-	-
Station 62														
IV	7/13	46°35'40"	87°06'30"	-	-	-	x	-	x	-	-	x	x	-
VI	8/12	"	"	x	x	x	x	-	x	-	-	x	x	x
VI	8/24	"	"	x	x	x	-	x	x	-	-	x	x	x
Station 63														
V	7/26	47°48'50"	89°13'55"	x	x	-	x	-	-	x	x	x	x	-
VII	9/7	"	"	x	-	x	-	-	-	x	-	-	-	-
VII	9/8	"	"	x	x	x	-	x	-	x	-	x	x	x
VIII	9/28	"	"	x	x	x	-	x	-	x	-	x	x	x
VIII	9/29	"	"	x	-	x	-	-	-	x	-	-	-	-

Table 3. --Station location and list of activities at station, 1953 (Cisco) (cont'd)

Station (arabic) and cruise (roman) number	Month and day	Latitude (North)	Longitude (West)	Temperature			Bottom sample		Fishing		Plankton		Chemical sample	Secchi disc
				Bathythermograph	Reversing thermometer	Resistance thermometer	Petersen dredge	Orange-peel dredge	Trawl	Gill nets	1/2-meter net	Clarke-Bumpus sampler		
Station 64														
V	7/27	47°30'30"	90°23'00"	x	-	-	x	-	-	-	-	x	x	-
Station 65														
V	7/28	47°58'25"	90°54'30"	x	-	x	-	-	x	-	-	-	-	-
Station 66														
V	7/29	46°51'00"	90°40'40"	x	x	-	x	-	x	-	-	x	x	-
Station 67														
V	7/29	46°59'10"	90°27'40"	-	-	-	x	-	x	-	-	-	-	-
Station 68														
V	7/30	46°48'40"	90°38'35"	x	-	-	x	-	x	-	-	-	-	-
Station 69														
V	7/31	46°50'55"	89°45'05"	x	-	x	x	-	x	-	-	-	x	-
Station 70														
VI	8/12	46°34'10"	87°12'50"	x	-	x	-	-	x	-	-	-	-	-
Station 71														
VI	8/13	46°35'15"	86°43'45"	x	x	x	-	x	x	-	-	x	x	x
Station 72														
VI	8/13	46°26'18"	86°38'30"	x	x	x	-	x	-	x	-	x	x	-
VI	8/14	"	"	x	-	x	-	-	x	x	x	-	-	-
Station 73														
VI	8/14	46°33'20"	86°34'50"	x	-	x	-	x	x	-	-	-	-	-
Station 74														
VI	8/14	46°28'40"	86°35'50"	x	-	x	-	-	x	-	-	-	-	-
VI	8/23	"	"	x	-	x	-	-	x	-	-	-	-	-

Table 3.--Station location and list of activities at station, 1953 (Cisco) (cont'd)

Station (arabic) and cruise (roman) number	Month and day	Latitude (North)	Longitude (West)	Temperature			Bottom sample		Fishing		Plankton		Chemical sample	Secchi disc
				Bathythermograph	Reversing thermometer	Resistance thermometer	Petersen dredge	Orange-peel dredge	Trawl	Gill nets	1/2-meter net	Clarke-Bumpus sampler		
Station 75														
VI	8/15	46°40'40"	86°06'05"	x	x	x	-	x	x	-	-	x	x	x
Station 76														
VI	8/15	46°45'15"	86°02'10"	x	x	x	-	x	-	-	-	x	x	x
Station 77														
VI	8/15	46°40'35"	85°58'35"	x	x	x	-	x	-	x	-	x	x	x
Station 78														
VI	8/16	47°09'30"	86°15'15"	x	x	x	-	x	x	-	-	x	x	x
Station 79														
VI	8/17	47°28'05"	86°02'54"	x	x	x	-	x	-	x	-	x	x	-
Station 80														
VI	8/18	47°32'05"	85°24'00"	x	x	x	-	x	-	-	-	x	x	x
Station 81														
VI	8/18	47°33'20"	84°56'35"	x	-	-	-	-	-	x	-	-	-	-
Station 82														
VI	8/19	46°56'40"	84°46'25"	x	-	-	-	x	-	-	-	x	x	x
Station 83														
VI	8/20	46°51'00"	84°33'20"	x	-	x	-	x	x	-	-	x	-	-
Station 84														
VI	8/20	46°46'35"	84°39'15"	x	-	x	-	x	x	-	-	x	-	-
Station 85														
VI	8/20	46°35'35"	84°35'40"	x	x	x	-	x	-	x	-	x	x	x
Station 86														
VI	8/21	46°35'15"	84°53'00"	x	-	x	-	x	x	-	-	x	x	x

Table 3.--Station location and list of activities at station, 1953 (Cisco) (cont'd)

Station (arabic) and cruise (roman) number	Month and day	Latitude (North)	Longitude (West)	Temperature			Bottom sample		Fishing		Plankton		Chemical sample	Secchi disc
				Bathythermograph	Reversing thermometer	Resistance thermometer	Petersen dredge	Orange-peel dredge	Trawl	Gill nets	1/2-meter net	Clarke-Bumpus sampler		
Station 87														
VI	8/21	46°53'45"	84°34'10"	x	x	x	-	x	-	-	-	x	x	x
Station 88														
VI	8/23	46°44'00"	86°23'00"	x	x	x	-	x	-	-	-	x	x	x
Station 89														
VI	8/23	46°46'15"	86°29'40"	x	-	x	-	x	x	-	-	-	-	-
Station 90														
VI	8/23	46°37'30"	86°46'20"	x	-	x	-	-	-	x	-	-	-	-
Station 91														
VII	9/2	46°56'55"	88°14'25"	x	-	x	-	-	-	x	-	-	-	-
VII	9/3	"	"	x	-	x	-	x	-	x	-	-	-	-
Station 92														
VII	9/6	47°50'15"	88°17'15"	x	x	x	x	x	-	x	-	x	x	-
Station 93														
VII	9/7	48°04'47"	88°34'44"	x	-	x	-	-	-	x	-	-	-	-
Station 94														
VII	9/9	46°58'30"	88°11'45"	x	-	x	-	x	-	x	-	-	-	-
VII	9/10	"	"	x	-	x	-	-	-	x	-	-	-	-
Station 95														
VII	9/10	46°58'45"	88°07'30"	x	-	x	-	x	x	-	-	-	-	-
Station 96														
VIII	9/30	47°54'40"	88°57'00"	x	-	x	-	x	x	-	-	x	x	-
Station 97														
VIII	9/30	47°56'40"	88°53'15"	x	-	x	-	-	-	x	-	-	-	-
VIII	10/1	"	"	x	-	x	-	-	-	x	-	-	-	-

Table 3.--Station location and list of activities at station, 1953 (Cisco) (cont'd)

Station (arabic) and cruise (roman) number	Month and day	Latitude (North)	Longitude (West)	Temperature			Bottom sample		Fishing		Plankton		Chemical sample	Secchi disc
				Bathythermograph	Reversing thermometer	Resistance thermometer	Petersen dredge	Orange-peel dredge	Trawl	Gill nets	1/2-meter net	Clarke-Bumpus sampler		
Station 98														
IX	10/17	46°41'15"	87°29'00"	x	-	x	-	-	-	x	-	-	-	-
IX	10/18	"	"	x	-	x	-	-	-	x	-	x	-	-
Station 99														
IX	10/18	46°43'15"	87°31'40"	x	-	x	-	-	-	x	-	-	-	-
IX	10/19	"	"	x	-	x	-	-	-	x	-	-	-	-
IX	10/20	"	"	x	-	x	-	-	-	x	-	-	-	-
Station 100														
IX	10/20	46°32'30"	86°59'20"	x	-	x	-	-	-	x	-	-	-	-
IX	10/21	"	"	-	-	x	-	-	-	x	-	-	-	-
IX	10/22	"	"	-	-	x	-	-	-	x	-	-	-	-
IX	10/23	"	"	-	-	x	-	-	-	x	-	-	-	-

Table 4.--Hydrographic station data, cruise VI, 1952 (Cisco)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	O_2 (ppm)	Total alkalinity (ppm)
Station 1; August 13; 1109 EST; 52 fathoms; wind: direction NW, force light; sea calm; sky overcast 1/4 (cirrus, cumulus); visibility perfect; barometer 29.96; bathythermograph slide 11; Secchi disc 9.8 meters; bottom silt, some sand.					
0	16.1	7.9	81.1	...	43.8
7.5	15.7	...	...	...	...
30.5	12.3	7.6	80.8	...	44.8
61.0	6.1	7.4	81.2	...	43.8
88.5	4.7	7.2	81.5	...	43.8
Station 2; August 13; 1545 EST; 80 fathoms; wind: direction NE, force light; sea calm; sky overcast 1/4 (stratus-cumulus); visibility perfect; barometer 29.93; bathythermograph slide 16; Secchi disc 10.1 meters.					
0	...	7.9	80.3	...	43.8
15	...	7.9	81.3	...	43.8
30	...	7.6	80.0	...	44.3
90	...	7.6	81.2	...	44.3
140	...	7.4	80.6	...	43.8
Station 5; August 14; 1241 EST; 110 fathoms; wind: direction SW, force fresh; sea calm; sky overcast 1/2 (alto-stratus); visibility good; barometer 29.81; bathythermograph slide 26; bottom rock.					
0	15.5	7.7	76.8	...	44.3
15	10.3	7.7	78.1	...	44.3
30	5.7	7.5	81.1	...	43.3
90	4.0	7.4	78.5	...	43.3
137	3.9	7.4	79.0	...	43.3
183	3.9	7.4	79.0	...	44.3
Station 7; August 15; 1125 EST; 93 fathoms; wind: direction NE, force light; sea gentle; sky overcast 1/2 (alto-cumulus); visibility good; barometer 29.68; bathythermograph slide 33; bottom clay 80%, sand 20%.					
0	18.7	7.9	78.7	...	...
15	12.7	7.8	77.5	...	43.3
30	5.2	7.6	81.2	...	44.3
45	4.2	7.5	79.6	...	44.3
90	4.0	7.4	79.3	...	44.3

Table 4.--Hydrographic station data, cruise VI, 1952 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	O_2 (ppm)	Total alkalinity (ppm)
Station 9; August 16; 1345 EST; 80 fathoms; wind: direction NE, force light; sea gentle; sky overcast 3/4 (stratus-cumulus); visibility good; barometer 29.85; bathythermograph slides 46, 47; bottom clay.					
0	16.6	7.8	80.7	...	44.3
15	15.0	...	81.1	...	43.8
30	9.5	...	80.0	...	43.8
37	6.2	...	80.0	...	43.3
61	5.0	7.4	80.1	...	43.8
91	4.2	...	...	...	...
138	4.0	7.4	80.1	...	44.3
Station 11; August 17; 1040 EST; 101 fathoms; wind: direction NE, force gentle; sea gentle; sky overcast 3/4 (cumulus); visibility good; barometer 29.93; bathythermograph slides 52, 53; bottom clay.					
0	13.3	7.7	80.1	...	46.4
15	11.6	...	82.4	...	46.4
23	7.8	...	80.7	...	46.4
30	4.9	...	79.3	...	48.4
60	4.1	...	78.8	...	48.4
122	3.9	7.4	78.1	...	49.4
1/183	3.7	...	78.6	...	47.4
Station 13; August 17; 1446 EST; 105 fathoms; wind: direction SW, force calm; sea calm; sky overcast 1/2 (cumulus); visibility perfect; bathythermograph slides 58, 59; bottom clay 10%, gray mud 90%.					
0	14.2	7.8	79.2	...	46.9
7	12.7	...	81.5	...	46.9
15	6.9	...	74.5	...	47.4
30	4.7	...	76.0	...	47.4
75	4.1	...	73.0	...	47.4
135	3.9	...	73.4	...	46.4
180	3.8	7.4	78.0	...	46.4

Table 4.--Hydrographic station data, cruise VI, 1952 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	O_2 (ppm)	Total alkalinity (ppm)
Station 15; August 18; 0850 EST; 121 fathoms; wind: direction SW, force light; sea calm; sky overcast 1/4 (cirrus); visibility good; barometer 30.06; bathythermograph slides 63, 64; Secchi disc 9.4 meters; bottom clay 10%, gray mud 90%.					
0	13.0	7.7	82.2	...	47.8
15	8.4	...	82.1	...	49.0
30	6.9	...	83.1	...	49.0
60	4.0	...	81.8	...	47.8
150	3.9	7.4	82.5	...	47.8
1/215	3.8	...	83.5	...	49.0
Station 16; August 18; 1250 EST; 97 fathoms; wind: direction SW, force fresh; sea gentle; sky overcast 1/4 (cirrus); visibility good; barometer 30.07; bathythermograph slides 72, 73; Secchi disc 9.2 meters; bottom clay, gray mud.					
0	14.7	7.7	82.8	...	47.8
8	14.1	...	80.7	...	47.8
15	10.7	...	80.1	...	47.8
30	5.1	...	79.9	...	47.8
90	4.0	...	80.3	...	47.4
160	3.8	7.2	81.2	...	47.4
Station 17; August 18; 1557 EST; 100 fathoms; wind: direction SW, force light; sea calm; sky overcast 1/2 (cirrus, cumulus); visibility good; barometer 30.04; bathythermograph slides 77, 78; bottom silt, gray mud.					
0	15.0	7.7	81.5	...	45.3
15	8.2	...	80.1	...	...
30	4.1	...	80.5	...	...
120	3.8	...	79.5	...	46.9
2/180	3.7	7.2	81.1	...	46.4
Station 18; August 19; 1027 EST; 107 fathoms; wind: direction S, force calm; sea calm; sky overcast 1/4 (cirrus, cumulus); visibility good; barometer 29.97; bathythermograph slides 87, 88.					
0	...	7.5	84.3	10.5	46.9
15	...	7.5	81.8	11.3	46.4
30	...	...	84.0	12.0	47.4
90	...	...	80.1	11.4	46.4
150	...	...	81.4	12.1	46.4
190	...	7.3	82.4	11.1	...

Table 4.--Hydrographic station data, cruise VI, 1952 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	O_2 (ppm)	Total alkalinity (ppm)
Station 19; August 19; 1317 EST; 87 fathoms; wind: direction SE, force calm; sea calm; sky overcast 1/4 (cirrus, cumulus); visibility good; barometer 29.92; bathythermograph slides 95, 96; Secchi disc 13.1 meters; bottom clay.					
0	15.6	7.5	81.5	...	45.3
15	5.6	...	79.6	...	45.3
30	5.1	...	80.2	...	46.4
90	3.9	...	81.4	...	46.9
150	3.8	7.3	80.9	...	45.8
Station 20; August 19; 1640 EST; 96 fathoms; wind: direction NE, force light; sea calm; sky overcast 3/4 (stratus, cumulus); visibility good; barometer 29.88; bathythermograph slides 101, 102; bottom clay, gray mud.					
0	17.8	7.4	82.6	...	46.9
8	8.9	...	80.0	...	46.9
15	6.4	...	78.2	...	47.9
30	4.5	...	81.2	...	47.9
90	3.9	...	80.1	...	47.4
175	3.8	7.3	79.6	...	46.9
Station 21; August 20; 0912 EST; 97 fathoms; wind: direction NE, force light; sea calm; sky overcast 1/2 (cumulus); visibility fair; barometer 29.77; bathythermograph slides 109, 110; Secchi disc 11.0 meters; bottom clay, gray mud.					
0	...	7.8	81.6	10.2	44.8
15	...	...	88.2	11.9	44.8
30	...	...	87.0	11.9	45.3
90	...	...	86.6	12.3	44.3
170	...	7.4	84.5	12.1	44.3
Station 22; August 20; 1241 EST; 33 fathoms; wind: direction SW, force light; sea calm; sky (cirrus, cumulus); visibility good; barometer 29.78; bathythermograph slide 115; Secchi disc 4.6 meters; bottom clay, sand.					
0	16.0	7.8	82.2	...	44.8
12	12.8	...	81.5	...	44.3
30	5.8	...	82.3	...	45.3
45	4.3	...	81.1	...	44.3
54	4.5	7.3	81.8	...	45.3

Table 4.--Hydrographic station data, cruise VI, 1952 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	O_2 (ppm)	Total alkalinity (ppm)
Station 26; August 22; 0603 EST; 37 fathoms; wind: direction S, force light; sea calm; sky clear; visibility fair; barometer 30.34; bathythermograph slide 125; bottom sand.					
0	16.4	7.9	81.1	...	44.3
15	14.3	...	82.5	...	44.3
30	6.1	...	81.9	...	44.3
63	4.3	7.6	81.7	...	44.3
Station 27; August 22; 0944 EST; 78 fathoms; wind: direction SW, force light; sea calm; sky clear; visibility perfect; barometer 30.38; bathythermograph slides 130, 131; bottom clay, grayish-brown mud.					
0	15.5	7.7	93.8	...	47.9
15	6.2	...	80.0	...	49.0
30	4.3	...	80.5	...	49.0
80	3.8	...	81.1	...	47.9
130	3.8	7.3	79.1	...	46.7
Station 28; August 22; 1336 EST; 112 fathoms; wind: direction SW, force light; sea calm; sky overcast 1/4 (cumulus); visibility perfect; barometer 30.38; bathythermograph slides 138, 139; Secchi disc 15.6 meters; bottom clay, mud.					
0	15.0	7.7	82.8	...	47.8
15	11.6	...	81.5	...	47.8
26	5.5	...	77.2	...	47.8
90	3.9	...	79.1	...	47.8
190	3.7	7.3	80.5	...	47.8
Station 29; August 23; 0834 EST; 112 fathoms; wind: direction SW, force moderate; sea gentle; sky overcast 3/4 (stratus, cumulus); visibility fair; barometer 30.24; bathythermograph slides 149, 150; bottom clay, gray mud.					
0	14.2	7.7	82.8	...	47.3
15	13.2	...	84.5	...	47.3
45	5.6	...	79.7	...	47.3
60	4.3	...	82.1	...	47.3
200	3.8	7.4	84.0	...	49.0

Table 4.--Hydrographic station data, cruise VI, 1952 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	O_2 (ppm)	Total alkalinity (ppm)
Station 30; August 23; 1055 EST; 152 fathoms; wind: direction SW, force moderate; sea choppy; sky overcast 3/4 (stratus, cumulus); visibility poor; barometer 30.23; bathythermograph slides 153, 154; bottom silt, grayish-black mud.					
0	14.4	7.7	82.4	...	46.7
8	14.3	...	83.9	...	46.7
18	7.5	...	81.6	...	46.7
138	3.9	...	83.1	...	46.7
262	3.7	7.3	83.1	...	46.7
Station 31; August 23; 1358 EST; 101 fathoms; wind: direction SW, force light; sea gentle; sky overcast 1/2 (cumulus); visibility good; barometer 30.20; bathythermograph slides 157, 158; Secchi disc 13.4 meters; bottom sand 20%, reddish-brown mud 80%.					
0	15.0	7.8	89.9	...	46.7
9	14.6	...	80.0	...	46.7
30	7.1	...	79.8	...	47.8
105	3.9	...	78.9	...	46.7
180	3.7	7.3	79.3	...	46.7
Station 10; August 25; 1142 EST; 10 fathoms; wind: direction S, force light; sea calm; sky clear; visibility perfect; barometer 30.12; Secchi disc 11.9 meters; bottom sand.					
0	15.9	7.9	81.9	...	46.7
19.8	10.2	7.5	81.1	...	46.7
Station 8; August 27; 1005 EST; 18 fathoms; wind: direction SE, force light; sea calm; sky overcast 1/2 (cumulus); visibility fair; barometer 30.07; bathythermograph slide 182; bottom sand.					
0	17.8	7.9	82.1	...	47.9
30	10.0	7.4	79.8	...	47.9

1/ Mud in sample
2/ Suspended matter in sample

Table 5.--Hydrographic station data, 1953 (Cisco)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	0_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	$Si0_2$ (ppm)
Cruise I; station 1; May 5; 1038 EST; 12.5 fathoms; wind: direction NNW, force calm; sea calm; sky clear; visibility good; barometer 30.03; bathythermograph slide 1; bottom sand, gravel.											
0	2.6	7.3	...	...	44.0	...	3.1	1.00	...	0.13	5
30	2.4	7.4	...	...	43.5	...	3.1	1.00	...	0.14	5
Cruise I; station 2; May 6; 1147 EST; 46 fathoms; wind: direction S, force light; sea calm; sky clear; visibility perfect; barometer 29.88; bathythermograph slides 8, 9; bottom sand, clay.											
0	1.9	7.3	82.7	...	44.0	...	3.1	1.00	4	0.12	5
40	1.9	7.4	80.4	...	43.5	...	3.2	0.90	6	0.12	5
75	1.9	7.4	80.4	...	43.5	...	3.2	0.95	8	0.14	5
Cruise I; station 4; May 7; 0839 EST; 12 fathoms; wind: direction W, force light; sea calm; sky clear; visibility good; barometer 29.86; bathythermograph slide 14; bottom large rocks.											
0	3.2	7.4	83.8	...	44.0	...	3.1	0.85	11	0.11	5
19	3.5	7.5	84.9	...	43.5	...	3.0	0.85	...	0.11	5
Cruise I; station 3; May 7; 1009 EST; 43 fathoms; wind: direction S, force light; sea calm; sky overcast 1/2 (cumulus); visibility perfect; barometer 29.88; bathythermograph slide 15; bottom 1 inch sand on red clay.											
0	1.9	7.4	84.2	...	43.5	...	3.2	0.90	11	0.12	5
76	1.9	7.4	82.9	...	44.0	...	3.1	1.05	...	0.13	6
Cruise I; station 5; May 8; 1102 EST; 53 fathoms; wind: direction S, force light; sea calm; sky overcast 1/2 (cumulus); visibility good; barometer 29.77; bathythermograph slide 17; bottom 1/2 inch sand on red clay.											
0	1.9	7.4	83.9	...	44.5	...	3.2	1.00	...	0.12	6
45	1.8	7.4	83.9	...	44.0	...	3.1	0.85	10	0.12	5
94	1.9	7.4	83.9	...	44.0	...	3.1	...	...	0.14	5

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	0_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	SiO_2 (ppm)
Cruise I; station 7; May 9; 1014 EST; 57 fathoms; wind: direction SW, force light; sea calm; sky overcast 1/4 (cumulus); visibility good; barometer 29.87; bathythermograph slide 26; bottom 1/2 inch sand on red clay.											
0	2.2	7.5	86.9	...	43.0	...	2.9	0.75	12	0.12	5
50	...	7.5	85.6	...	43.0	...	2.9	0.75	11	0.12	5
100	...	7.5	83.3	...	43.5	...	3.1	0.90	13	0.13	5
Cruise I; station 9; May 11; 0810 EST; 49 fathoms; wind: direction variable, force fresh; sea choppy; sky overcast 1/2 (cumulus); visibility good; barometer 29.58; bathythermograph slide 29; bottom silt, little clay.											
0	3.1	7.5	86.3	...	43.5	...	3.0	0.85	...	0.12	4
35	3.2	7.4	82.5	...	44.5	...	3.1	...	6	0.14	5
70	3.4	7.4	82.5	...	44.0	...	3.1	0.85	15	0.15	5
Cruise II; station 2; May 22; 1209 EST; 45 fathoms; wind: direction N, force light; sea gentle; sky overcast 1 (cirrus, cumulus); visibility fair - good; barometer 29.85; bathythermograph slides 5, 6.											
0	2.5	7.3	...	...	46.5	12.7	2.8	1.00	4	0.12	...
40	2.7	7.3	...	...	...	11.8	2.8	0.95	6	0.11	...
80	3.5	7.4	...	...	...	12.2	2.8	0.95	7	0.12	...
Cruise II; station 10; May 22; 1718 EST; 7 fathoms; wind: direction N, force light; sea calm; sky overcast 1/4 (cirrus); visibility good; barometer 29.82.											
0	...	...	...	...	39.0	...	2.9	...	...	...	...
Cruise II; station 11; May 23; 1011 EST; 85 fathoms; wind: direction variable, force light; sea gentle; sky clear; visibility good; barometer 29.98; bathythermograph slide 16; bottom sand, clay.											
0	2.8	7.6	...	12.5	...	11.8	1.9	1.00	12	0.11	...
48	2.7	7.4	...	12.3	...	12.7	2.8	1.05	...	0.11	...
98	2.7	7.5	...	12.1	...	12.7	2.8	1.00	8	0.14	...
148	2.7	7.5	...	12.2	...	11.8	2.9	0.95	8	0.11	...

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	0_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	$Si0_2$ (ppm)
Cruise II; station 12; May 23; 1235 EST; 110 fathoms; wind: direction variable, force gentle; sea gentle; sky clear; visibility good; barometer 29.98; bathythermograph slide 19; bottom silt, sand, clay.											
0	2.6	7.4	...	12.4	...	11.8	...	1.00	7	0.16	...
98	2.6	7.5	...	12.4	...	12.7	2.8	1.05	8	0.11	...
198	2.7	7.5	...	12.3	...	11.8	2.9	0.95	8	0.11	...
Cruise II; station 13; May 23; 1457 EST; 46 fathoms; wind: direction variable, force light; sea gentle; sky overcast 1 (alto-cumulus) visibility good; barometer 29.96; bathythermograph slide 23; bottom sand, gravel, clay.											
0	2.6	7.5	...	12.4	...	12.0	2.8	1.00	8	0.12	...
40	2.6	7.5	...	12.6	...	11.8	2.7	1.05	14	0.12	...
80	2.7	7.5	...	12.5	...	12.0	2.8	1.00	5	0.11	...
Cruise II; station 13; May 24; 0935 EST; 40 fathoms; wind: force calm; sea calm; sky clear, visibility good, barometer 30.00; bathythermograph slide 24.											
0	...	...	...	...	43.0	...	...	...	...	...	...
Cruise II; station 14; May 24; 1248 EST; 92 fathoms; wind: force calm; sea calm; sky overcast 1 (cirrus); visibility fair; barometer 30.00; bathythermograph slide 28; Secchi disc 12.9 meters; bottom clay.											
0	2.5	7.4	...	12.2	...	11.8	3.0	1.05	4	0.11	...
80	2.4	7.3	...	12.5	...	12.3	2.8	1.05	22	0.11	...
160	2.4	7.5	...	12.6	...	12.7	2.8	1.00	5	0.10	...
Cruise II; station 15; May 24; 1516 EST; 100 fathoms; wind; direction NE, force calm; sea calm; sky overcast 1 (alto-stratus); visibility good; barometer 29.94; bathythermograph slide 31; bottom silt, sand, clay.											
0	2.5	7.5	...	12.6	...	12.3	2.8	1.05	7	0.09	...
85	2.5	7.5	...	12.5	...	12.3	2.8	1.05	6	0.10	...
170	2.5	7.5	...	12.6	...	11.8	2.8	1.05	5	0.11	...

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	0_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	$Si0_2$ (ppm)
Cruise II; station 16; May 24; 1649 EST; 50 fathoms; wind: direction E, force moderate; sea choppy; sky overcast 1 (alto-stratus); visibility fair; barometer 29.94; bathythermograph slide 33.											
0	...	...	...	...	44.0	...	...	...	...	...	...
Cruise II; station 16; May 25; 0842 EST; 50 fathoms; wind: direction E, force moderate; sea moderate; sky overcast 1 (stratus); visibility fair; bottom silt.											
0	...	...	...	...	...	12.3	2.8	1.05	100	0.13	...
Cruise II; station 17; May 26; 1534 EST; 38 fathoms; wind: direction NW, force strong; sea choppy; sky clear; visibility perfect; barometer 30.18; bathythermograph slide 45; Secchi disc 7.0 meters.											
0	2.6	7.5	...	12.6	...	12.5	2.8	1.10	8	0.12	...
30	2.6	7.5	...	12.4	...	13.0	2.8	1.00	8	0.11	...
60	2.7	7.5	...	12.4	...	13.5	2.8	1.00	10	0.10	...
Cruise II; station 17; May 27; 0755 EST; 38 fathoms; wind: direction W, force light; sea gentle; sky overcast 1/2 (cirrus); barometer 30.38; bathythermograph slide 46.											
0	...	...	...	...	...	12.3	2.8	1.05	20	0.10	...
Cruise II; station 18; May 27; 1010 EST; 99 fathoms; wind: direction W, force light; sea gentle; sky (cirrus); barometer 30.38; bathythermograph slide 48; Secchi disc 7.3 meters; bottom silt.											
0	2.5	7.5	...	11.6	...	12.9	2.8	1.00	8	0.11	...
85	2.5	7.3	...	12.1	...	12.2	2.8	1.05	11	0.11	...
170	2.6	7.3	...	11.9	...	12.5	2.8	1.05	16	0.12	...
Cruise II; station 19; May 27; 1222 EST; 53 fathoms; wind: force calm; sea calm; sky overcast 1/4 (cirrus); visibility fair; barometer 30.34; bathythermograph slide 49; Secchi disc 8.3 meters; bottom silt.											
0	3.0	7.5	78.7	11.7	...	12.4	2.8	1.05	12	0.11	...
45	3.3	7.3	80.5	12.2	...	13.5	2.8	1.05	12	0.10	...
90	3.9	7.3	79.5	11.7	...	12.2	2.8	1.00	4	0.13	...

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	O_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	SiO_2 (ppm)
Cruise II; station 20; May 28; 1122 EST; 17 fathoms; wind: direction NE, force gentle; sea gentle; sky overcast 1 (stratus); visibility good; barometer 30.27; bathythermograph slide 59; Secchi disc 5.0 meters; bottom sand, some clay.											
0	6.7	7.5	78.2	11.6	...	12.2	2.8	1.05	13	0.13	...
18	5.9	7.5	74.7	11.6	...	12.0	2.8	1.00	10	0.13	...
36	5.1	7.5	71.0	12.0	...	11.8	2.7	1.00	7	0.12	...
Cruise II; station 21; May 29: 1257 EST; 15 fathoms; wind: direction NE, force light; sea gentle; sky overcast 1 (stratus); visibility fair; bathythermograph slides 62, 63; Secchi disc 3.4 meters; bottom silt.											
0	7.7	7.5	78.0	11.8	...	12.2	2.8	1.00	52	0.12	...
15	6.5	7.3	81.9	12.1	...	12.2	2.8	1.05	12	0.13	...
30	5.9	7.3	79.0	12.0	...	12.5	2.8	0.95	8	0.14	...
Cruise II; station 22; May 29; 1437 EST; 11 fathoms; wind: direction NE, force light; sea gentle; sky (stratus); visibility fair; barometer 29.70; bathythermograph slide 64; bottom silt.											
0	...	...	...	...	...	12.2	2.8	1.05	32	0.16	...
Cruise II; station 23; May 29; 1635 EST; 20 fathoms; wind: direction NE, force light; sea gentle; sky overcast 1 (stratus); visibility good; bathythermograph slide 65.											
0	...	...	78.0	...	...	12.3	...	...	13	...	...
Cruise II; station 21; May 30; 0839 EST; 14 fathoms; wind: direction NE, force gentle; sea gentle; sky overcast 1 (stratus, nimbus); visibility fair; barometer 29.57; bathythermograph slide 66.											
0	...	...	78.0	...	...	12.0	...	...	12	...	...

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	O_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	SiO_2 (ppm)
Cruise II, station 24; May 30; 1002 EST; 42 fathoms; wind: direction NE, force moderate; sea choppy; sky overcast 1 (stratus); visibility fair; barometer 29.57; bathythermograph slide 68; Secchi disc 4.3 meters.											
0	4.7	7.4	78.5	12.2	...	11.7	2.9	0.95	10	0.14	...
40	4.7	7.3	83.4	12.3	...	13.0	2.8	1.05	8	0.14	...
1/80	4.1	7.3	74.9	12.5	...	11.9	3.5	1.05	195	...	...
1/ Sample from bottom contained mud											
Cruise II; station 25; May 30; 1153 EST; 14 fathoms; wind: direction NE, force moderate; sea choppy; sky overcast 1 (stratus); visibility fair; bathythermograph slide 69.											
0	...	...	78.3	...	...	12.0	...	...	9	...	...
Cruise II; station 26; May 30; 1341 EST; 14 fathoms; wind: direction NE, force moderate; sea gentle; sky overcast 1 (stratus).											
0	...	...	78.3	...	...	12.2	...	...	17	...	...
Cruise II; station 21; May 30; 1450 EST; 14 fathoms; wind: direction variable; sea gentle; sky overcast 1 (stratus); barometer 29.52; bathythermograph slide 71.											
0	...	...	78.0	...	...	12.1	...	...	19	...	...
Cruise II; station 27; May 31; 1512 EST; 19 fathoms; wind: force moderate; sea choppy; sky overcast 1 (fog); visibility poor; barometer 29.83; Secchi disc 1.5 meters; bottom sand (fine).											
0	6.0	7.4	78.7	12.2	...	12.3	2.8	1.00	27	0.21	...
14	6.1	7.5	78.7	11.7	...	12.7	2.8	1.10	28	0.18	...
28	4.5	7.6	76.5	12.2	...	...	...	...	23	0.14	...
Cruise II; station 27; June 1; 0945 EST; 19 fathoms; wind: force calm; sea calm; sky (fog); visibility poor; barometer 30.23; bathythermograph slide 84.											
0	...	...	78.7	...	...	12.3	...	...	44	...	...

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	O_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	SiO_2 (ppm)
Cruise II; station 28; June 1; 1207 EST; 27 fathoms; wind: force calm; sea calm; sky clear; visibility perfect; barometer 30.20; bathythermograph slide 87; Secchi disc 7.0 meters; bottom sand, clay.											
0	5.4	7.7	77.6	11.7	...	12.5	2.8	1.05	8	0.12	...
23	5.1	7.4	77.0	12.2	...	12.0	2.8	1.10	8	0.12	...
46	4.9	7.4	77.8	12.2	...	12.3	2.8	1.05	9	0.11	...
Cruise II; station 2; June 1; 2228 EST; 47 fathoms; wind: force calm; sea calm; sky northern lights; visibility perfect; barometer 30.08; bathythermograph slide 97.											
0	2.9	...	78.7	12.6	...	12.9	2.7	1.00	8	0.10	...
40	2.9	...	81.9	12.8	...	13.1	2.7	1.00	8	0.13	...
80	2.9	...	83.7	12.7	...	13.3	2.8	1.05	8	0.11	...
Cruise III; station 29; June 12; 1005 EST; 15 to 17 fathoms; wind: direction NE, force light; sea calm; sky overcast 3/4 (stratus, cumulus); visibility fair; barometer 29.97; bathythermograph slide 2; bottom sand.											
0	6.4	7.4	...	...	...	12.3	2.9	0.95	5	0.11	...
27	4.6	7.4	...	...	...	12.3	2.8	1.00	8	0.11	...
Cruise III; station 1; June 12; 1303 EST; 17 fathoms; wind: direction NE, force calm; sea calm; sky overcast 1/2 (stratus, cumulus); visibility good; barometer 30.02; bathythermograph slide 3; bottom sand.											
0	8.9	7.4	...	...	...	12.3	2.9	0.95	10	0.11	...
28	4.3	7.4	...	...	...	12.3	2.9	1.00	10	0.10	...

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	O_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	SiO_2 (ppm)
Cruise III; station 31; June 13; 1343 EST; 93 fathoms; wind: direction NE, force light; sea calm; visibility fair; barometer 29.90; bathythermograph slide 8; Secchi disc 15.0 meters; bottom silt, sand.											
0	3.4	7.4	...	10.0	...	12.3	2.9	0.95	10	0.11	...
25	3.3	7.4	...	12.3	...	12.3	2.9	0.95	10	0.12	...
50	3.3	7.4	...	11.2	...	12.3	3.0	0.90	10	0.11	...
100	3.3	7.4	...	11.7	...	12.3	2.9	0.90	10	0.11	...
160	3.3	7.4	...	10.5	...	12.3	2.8	1.05	10	0.12	...
Cruise III, station 34; June 14; 1513 EST; 6 fathoms; wind: direction SE, force light; sea calm; sky clear; visibility good; barometer 29.93; bottom sand (fine).											
0	6.8	7.5	...	...	...	12.3	2.9	0.95	5	0.11	...
22	4.5	7.4	...	...	...	12.4	2.9	0.90	5	0.10	...
Cruise III; station 35; June 15; 0952 EST; 30 fathoms; wind: direction SW, force fresh; sea gentle; sky overcast 1/4; visibility fair; bathythermograph slide 19; Secchi disc 11.6 meters; bottom sand.											
0	4.4	7.4	...	...	...	12.4	2.5	0.95	8	0.09	...
55	3.9	7.4	...	...	...	12.4	2.9	0.90	21	0.11	...
Cruise III; station 36; June 15; 1243 EST; 112 fathoms; wind: direction SSW, force light; sea calm; sky overcast 3/4 (cumulus); visibility good; barometer 29.87; bathythermograph slide 20; Secchi disc 13.1; bottom sand.											
0	3.5	7.4	...	...	...	12.4	2.9	0.90	14	0.11	...
100	3.5	7.4	...	...	...	12.4	3.0	0.95	9	0.10	...
198	3.5	7.4	...	...	...	12.4	2.9	1.00	10	0.12	...

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	O_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	SiO_2 (ppm)
Cruise III; station 37; June 16; 1307 EST; 102 fathoms; wind: direction NE, force light; sea gentle; sky overcast 1; visibility poor; barometer 29.70; bathythermograph slide 25.											
0	3.5	7.4	...	...	...	12.4	2.7	0.90	9	0.09	...
75	3.5	7.3	...	...	...	12.4	3.0	0.95	11	0.11	...
150	3.6	7.2	...	...	...	12.4	3.0	0.95	...	0.12	...
Cruise III; station 38; June 17; 0958 EST; 35 fathoms; wind: direction NW, force light; sea calm; sky overcast 1; visibility poor; barometer 29.98; bathythermograph slide 27; Secchi disc 6.4 meters; bottom silt.											
0	8.2	7.3	...	...	...	12.4	2.7	0.95	12	0.14	...
60	6.1	7.2	...	...	...	12.3	2.9	0.95	9	0.11	...
Cruise III; station 40; June 19; 0917 EST; 41 fathoms; wind: direction variable, force light; sea calm; sky overcast 1/4; visibility fair; barometer 29.58; bathythermograph slide 30; bottom silt, sand.											
0	...	...	78.5	...	...	12.3	...	...	5	...	...
Cruise III; station 41; June 21; 0852 EST; 8 fathoms; wind: direction SW, force fresh; sea choppy; sky clear; visibility good; barometer 29.79 bathythermograph slide 34; bottom silt, sand.											
0	12.9	7.6	78.0	...	...	12.4	2.9	0.90	12	0.19	...
12	...	7.6	76.7	...	...	12.4	3.0	0.95	11	0.16	...
Cruise III; station 1; June 23; 1047 EST; 15 fathoms; wind: direction NW, force light; sea gentle; sky clear; visibility perfect; barometer 30.22; bathythermograph slide 37; Secchi disc 8.8 meters; bottom sand.											
0	7.8	7.4	...	...	...	12.3	2.7	0.95	10	0.12	...
26	7.4	7.4	...	...	...	12.3	2.8	0.95	10	0.15	...

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	O_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	SiO_2 (ppm)
Cruise IV; station 43; July 1; 1607 EST; 10 fathoms; wind: direction ENE, force light; sea gentle; sky (cirrus,cumulus); visibility perfect; barometer 29.72; bathythermograph slide 1; bottom bedrock.											
0	10.3	7.7	77.2	11.4	...	12.3	2.9	1.00	5	0.10	4
6	8.6	7.5	77.8	11.3	...	12.3	2.9	1.00	...	0.13	4
12	...	7.7	78.9	11.4	...	12.3	3.0	1.00	11	0.12	...
Cruise IV; station 44; July 2; 1413 EST; 16 fathoms; wind: direction WNW, force moderate; sea choppy; sky overcast 3/4 (cumulus); visibility perfect; barometer 29.48; bathythermograph slide 3; bottom sand, rock.											
0	9.8	7.5	77.4	...	...	12.3	3.0	1.00	7	0.13	5
12	8.1	7.5	78.0	...	...	12.3	3.5	1.00	8	0.13	5
24	7.1	7.5	83.0	...	...	12.3	3.2	...	7	0.12	5
Cruise IV; station 44; July 3; 0852 EST; 16 fathoms; wind: direction NW, force light; sea gentle; sky clear; visibility fair; barometer 29.98; bathythermograph slide 4.											
0	...	...	77.4	...	...	12.2	...	...	8	...	5
Cruise IV; station 45; July 3; 1035 EST; 40 fathoms; wind: direction NW, force light; sea calm; sky clear; visibility good; barometer 29.99; bathythermograph slide 6; bottom sand.											
0	8.8	7.5	77.9	11.8	...	12.3	2.9	1.05	9	0.12	4
35	4.0	7.5	77.1	12.7	...	12.3	2.9	1.05	9	0.10	4
70	4.0	7.5	80.8	12.3	...	12.3	2.9	1.10	10	0.10	4
Cruise IV; station 46; July 3; 1219 EST; 48 fathoms; wind: direction NW, force light; sea calm; sky clear; visibility excellent; barometer 29.99; bathythermograph slides 10, 11; Secchi disc 13.1 meters; bottom sand, clay.											
0	...	7.5	78.8	12.0	...	12.3	2.9	1.10	8	0.12	4
40	...	7.5	76.0	11.4	...	12.3	2.8	1.05	13	0.11	4
80	...	7.5	79.6	11.3	...	12.3	3.0	1.05	9	0.11	4

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18} \times 10^6$)	O_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	SiO_2 (ppm)
Cruise IV; station 47; July 3; 1451 EST; 65 fathoms; wind: force calm; sea calm; sky clear; visibility perfect; barometer 29.96; bathythermograph slides 16, 17; Secchi disc 12.2 meters; bottom silt, clay.											
0	6.9	7.5	78.3	10.8	...	12.3	3.0	1.00	9	0.11	4
50	4.1	7.5	77.6	11.5	...	12.3	2.9	0.90	8	0.12	4
100	3.9	7.5	78.6	10.1	...	12.4	2.9	1.00	8	0.12	4
Cruise IV; station 48; July 3; 1635 EST; 38 fathoms; wind: force light; sea calm; sky clear; visibility good; barometer 29.94; bathythermograph slide 20; Secchi disc 6.7 meters; bottom silt.											
0	8.5	7.5	79.3	11.7	...	12.4	2.9	0.95	10	0.12	5
30	6.6	7.5	79.2	12.0	...	12.4	2.9	0.95	8	0.10	4
60	5.7	7.5	82.5	12.2	...	12.4	2.9	1.00	12	0.11	5
Cruise IV; station 49; July 3; 1827 EST; 39 fathoms; wind: force calm; sea calm; sky clear; visibility perfect; barometer 29.92; bathythermograph slide 23; bottom silt.											
0	...	...	80.4	...	...	13.1	...	...	5	...	6
Cruise IV; station 49; July 4; 0903 EST; 37 fathoms; wind: direction ESE, force light; sea gentle; sky overcast 1/2 (cirrus); visibility good; barometer 29.84; bathythermograph slides 24, 25.											
0	8.8	7.4	80.4	11.6	...	13.0	3.0	1.10	...	0.11	4
35	9.1	7.4	75.4	12.0	...	12.5	3.0	1.05	...	0.11	5
70	4.7	7.4	80.8	12.3	...	12.4	3.1	1.00	...	0.12	5
Cruise IV; station 50; July 4; 1352 EST; 141 fathoms; wind: direction SSE, force light; sea gentle; sky overcast 3/4 (cirrus); visibility good; barometer 29.68; bathythermograph slide 32.											
0	3.6	7.4	77.7	12.5	...	12.4	3.0	1.00	...	0.10	4
50	3.5	7.4	79.5	12.5	...	12.4	3.0	1.00	5	0.10	5
150	3.6	7.4	79.9	12.6	...	12.3	3.0	1.05	7	0.10	5
250	3.5	7.4	81.3	12.3	...	12.4	2.9	1.10	Tr.	0.10	5

Table 5. --Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	0_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	$Si0_2$ (ppm)
Cruise IV; station 51; July 5; 0905 EST; wind: direction SW, force light; sea gentle; sky clear; barometer 29.87; bathythermograph slide 36; bottom silt.											
0	5.2	7.4	77.4	11.4	...	12.4	3.0	1.00	9	0.11	4
30	4.6	7.4	76.1	11.9	...	12.4	3.0	1.05	7	0.11	5
60	4.1	7.4	75.4	12.0	...	12.4	3.0	1.05	5	0.15	5
Cruise IV; station 52; July 5; 1103 EST; wind: direction W, force moderate; sea gentle; sky overcast 1/4 (cirrus); visibility good; barometer 29.91; bathythermograph slide 39.											
0	6.2	7.4	77.4	11.3	...	12.4	2.9	1.00	6	0.13	4
40	4.5	7.4	79.5	11.8	...	12.4	3.0	1.05	17	0.12	4
80	4.0	7.4	78.4	11.2	...	12.4	3.0	1.05	11	0.14	4
Cruise IV; station 53; July 5; 1345 EST; 18 fathoms; wind: direction WSW, force moderate; sea gentle; sky overcast 3/4 (cirrus); visibility good; bathythermograph slide 40.											
0	...	...	77.4	...	...	12.4	...	...	...	...	5
Cruise IV; station 55; July 6; 1139 EST; 100 fathoms; wind: direction SW, force gentle; sea choppy; sky overcast 1/4 (alto-cumulus); visibility good; barometer 29.70; bathythermograph slide 49; bottom clay, sand.											
0	4.2	7.3	77.7	15.5	...	12.4	3.0	1.05	...	0.11	5
50	4.1	7.3	77.4	14.2	...	12.4	3.0	1.05	13	0.12	5
110	3.8	7.3	77.5	14.5	...	12.4	3.1	1.05	...	0.11	5
170	3.7	7.3	77.6	16.0	...	12.3	2.9	1.05	9	0.11	4
Cruise IV; station 4; July 8; 1213 EST; 22 fathoms; wind: direction NW, force moderate; sea choppy; sky overcast 1/4 (cumulus); visibility perfect; bathythermograph slide 53; bottom silt.											
0	6.7	7.4	78.3	12.2	...	12.3	2.9	1.05	12	0.13	4
20	6.3	7.4	76.2	12.5	...	12.3	2.9	1.10	9	0.13	4
40	5.4	7.4	77.9	13.0	...	12.3	2.9	1.05	8	0.11	4

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	O_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	SiO_2 (ppm)
Cruise IV; station 4; July 8; 1458 EST; 22 fathoms; bathythermograph slide 54.											
0	...	...	78.3	...	...	12.3	...	...	12	...	6
Cruise IV; station 56; July 8; 1550 EST; 14.5 fathoms; wind: direction W, force moderate; sea choppy; sky overcast 3/4 (alto-stratus); visibility perfect; barometer 29.92; bathythermograph slide 55.											
0	...	...	79.0	...	...	12.3	...	...	11	...	6
Cruise IV; station 4; July 9; 0915 EST; 21 fathoms; wind: direction NE, force gentle; sea gentle; sky overcast 1/4 (cumulus); visibility good; barometer 30.12; bathythermograph slide 56.											
0	...	...	78.3	...	...	12.3	...	...	5	...	6
Cruise IV; station 57; July 9; 1307 EST; 21 fathoms; wind: direction WNW, force light; sea gentle; sky overcast 1/4 (cumulus); visibility perfect; barometer 30.14; bathythermograph slide 57; bottom sand, some clay.											
0	7.9	7.4	78.3	11.0	...	12.3	2.9	1.05	5	0.10	5
19	7.8	7.4	75.8	11.4	...	12.3	3.0	1.05	5	0.11	4
38	5.6	7.4	69.7	11.4	...	12.3	3.0	1.00	5	0.11	5
Cruise IV; station 4; July 9; 1521 EST; bathythermograph slide 58.											
0	...	...	78.3	...	...	12.3	...	...	8	...	6
Cruise IV; station 58; July 10; 0954 EST; 10 fathoms; wind: direction WNW, force moderate; sea choppy; sky clear; visibility good; barometer 30.18; bathythermograph slide 59; bottom sand.											
0	...	7.5	79.5	9.9	...	12.3	3.0	0.95	15	0.12	5
6	...	7.4	79.0	8.5	...	12.3	3.0	1.05	18	0.11	5
12	10.3	7.4	78.0	9.2	...	12.3	3.0	1.00	18	0.12	5

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	O_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	SiO_2 (ppm)
Cruise IV; station 10; July 10; 1413 EST; 8.5 fathoms; wind: force moderate; sea choppy; sky overcast 1/4 (cirrus); visibility good; barometer 30.13; bathythermograph slides 60, 61; bottom clay.											
0	18.9	7.6	83.7	7.2	...	13.0	3.3	2.45	25	0.51	13
5	18.9	7.4	87.9	7.6	...	13.0	3.3	2.55	36	0.37	13
10	18.5	7.4	91.4	7.6	...	13.0	3.2	2.90	25	0.48	11
13	...	7.4	89.3	7.8	...	13.0	3.2	1.40	17	0.21	7
Cruise IV; station 59; July 11; 1134 EST; 17 fathoms; wind: direction SW, force light; sea gentle; sky clear; visibility perfect; barometer 30.10; bathythermograph slide 68; bottom silt.											
0	...	...	77.7	...	...	12.4	...	...	7	...	6
Cruise IV; station 59; July 11; 1140 EST; 17 fathoms; wind: direction SW, force light; sea gentle; sky clear; visibility perfect; barometer 30.10.											
0	12.2	7.4	77.7	9.9	...	12.3	3.2	1.25	13	0.18	6
11	9.1	7.4	76.7	10.6	...	12.3	3.2	0.90	12	0.15	5
22	7.7	7.4	76.8	10.0	...	12.3	3.2	1.00	12	0.16	5
33	5.3	7.4	80.3	10.6	...	12.3	3.2	1.00	37	0.16	8
Cruise IV; station 60; July 11; 1353 EST; 68 fathoms; wind: force calm; sea gentle; sky clear; visibility perfect; barometer 30.06; bathythermograph slide 69; bottom silt.											
0	...	...	77.4	...	...	12.4	...	...	12	...	6

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	O_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	SiO_2 (ppm)	
Cruise IV; station 60; July 11; 1416 EST; 68 fathoms; wind: force calm; sea gentle; sky clear; visibility perfect; barometer 30.06.												
1	12.6	7.5	77.4	10.4	...	12.3	2.7	1.05	8	0.16		5
31	7.4	7.3	79.6	11.2	...	12.3	3.0	1.00	8	0.14		5
62	5.0	7.3	82.3	11.5	...	12.3	3.5	1.00	8	0.12		5
93	4.3	7.3	82.3	11.7	...	12.3	3.2	1.00	8	0.13		5
124	4.0	7.3	81.7	11.4	...	12.3	3.0	1.00	10	0.11		5
Cruise IV; station 61; July 11; 1652 EST; 9 to 31 fathoms; wind: force calm; sea calm; sky clear; visibility excellent; barometer 30.04; bathythermograph slide 71.												
0	...	...	...	...	43.0	12.4	...	...	...	...		5
Cruise IV; station 61; July 11; 1714 EST; 32 fathoms; wind: force calm; sea calm; sky overcast 3/4 (cirrus); visibility perfect; barometer 30.04; bathythermograph slides 72, 73, 74.												
0	14.4	7.5	77.7	10.2	...	12.3	3.0	1.05	11	0.14		5
28	5.4	7.4	76.0	11.7	...	12.3	2.9	1.00	10	0.15		5
56	4.4	7.4	76.5	11.5	...	12.3	2.7	1.00	2	0.17		5
Cruise IV; station 61; July 11; 1804 EST; 27 fathoms; wind: force calm; sea calm; sky clear; visibility excellent; barometer 30.02; bathythermograph slide 76.												
0	...	...	77.7	...	42.0	12.4	...	...	...	...		5
Cruise IV; station 61; July 12; 0740 EST; 31 fathoms; wind: force calm; sea calm; sky clear; visibility excellent; bathythermograph slide 77.												
0	...	...	77.4	...	46.0	12.4	...	...	...	...		5

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	O_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	SiO_2 (ppm)
Cruise IV; station 2; July 12; 1308 EST; 50 fathoms; wind: direction SE, force gentle; sea gentle; sky overcast 3/4 (cirrus, stratus, cumulus); visibility good; barometer 30.00; bathythermograph slide 99; bottom clay, sand.											
0	9.6	7.4	78.6	11.5	...	12.3	2.9	0.95	5	0.16	5
20	6.9	7.3	78.0	11.8	...	12.3	2.9	1.00	8	0.13	5
40	5.5	7.3	75.4	12.3	...	12.3	2.7	0.95	11	0.12	5
60	4.5	7.3	79.3	12.4	...	12.3	2.7	1.00	7	0.13	5
90	4.0	7.3	79.0	12.5	...	12.3	3.5	1.00	12	0.12	5
Cruise IV; station 1; July 13; 1100 EST; 14.5 fathoms; wind: direction SE, force light; sea gentle; sky overcast 1 (stratus); visibility fair; barometer 30.00; bathythermograph slide 120.											
0	...	...	78.0	...	44.0	12.4	...	...	...	...	4
Cruise IV; station 1; July 13; 1411 EST; 17 fathoms; wind: direction SE, force light; sea gentle; sky overcast 1 (stratus); visibility fair; barometer 30.00; bathythermograph slide 121.											
0	12.7	7.5	78.0	10.9	...	12.3	2.9	1.00	11	0.14	4
10	12.1	7.5	79.2	10.9	...	12.3	2.8	1.00	7	0.13	4
20	10.5	7.5	76.5	11.1	...	12.3	2.9	1.00	13	0.13	4
30	7.6	7.5	80.1	11.5	...	12.3	3.1	1.00	11	0.13	5
Cruise IV; station 62; July 13; 1600 EST; 31 fathoms; wind: force light; sea gentle; sky overcast 1 (stratus); visibility poor; barometer 30.00; bathythermograph slide 127; bottom silt.											
0	12.7	7.4	78.7	10.9	...	12.3	2.9	0.95	14	0.11	4
25	6.9	7.3	76.9	12.0	...	12.3	2.9	1.00	8	0.11	4
50	5.2	7.3	78.0	12.4	...	12.3	2.8	1.00	11	0.12	4

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	O_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	SiO_2 (ppm)
Cruise V; station 1; July 22; 1340 EST; 17 fathoms; wind: direction WSW, force gentle; sea gentle; sky clear; visibility perfect; barometer 29.82; bathythermograph slide 4; bottom sand.											
0	16.1	7.6	77.1	...	...	12.3	3.2	1.05	1	0.14	5
25	6.8	7.5	78.5	...	...	12.3	3.3	1.10	5	0.15	5
Cruise V; station 4; July 23; 1815 EST; 10 fathoms; wind: direction NW, force light; sea gentle; sky clear; visibility excellent; barometer 30.06; bathythermograph slide 11.											
0	...	...	...	...	...	12.4	...	...	...	...	...
Cruise V; station 4; July 24; 0936 EST; 11 fathoms; wind: direction SE, force light; sea gentle; sky clear; visibility perfect; bathythermograph slide 15.											
0	10.5	7.4	79.5	...	...	12.4	3.1	1.15	1	0.13	5
19	8.7	7.4	79.5	...	...	12.4	3.1	1.15	2	0.14	5
Cruise V; station 11; July 25; 0959 EST; 79 fathoms; wind: direction S, force light; sea gentle; sky overcast 1/2 (cirrus); visibility good; barometer 29.87; bathythermograph slides 22, 23; bottom sand, clay.											
0	9.4	7.5	77.5	...	...	12.0	2.9	1.05	Tr.	0.15	5
21	5.8	7.4	78.4	...	...	12.0	3.0	1.05	Tr.	0.14	5
130	3.9	7.4	78.1	...	...	12.0	2.9	1.05	Tr.	0.14	5
Cruise V; station 12; July 25; 1244 EST; 105 fathoms; wind: direction SE, force light; sea moderate swells; sky overcast 1 (cirrus, stratus); visibility good; barometer 29.82; bathythermograph slides 26, 27.											
0	11.3	7.6	77.8	...	...	12.3	2.9	1.05	14	0.12	4
12	7.9	7.6	76.2	...	...	12.3	2.9	1.05	14	0.12	5
185	3.8	7.4	75.7	...	...	12.3	2.9	1.05	8	0.12	5

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	O_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	SiO_2 (ppm)
Cruise V; station 63; July 26; 0940 EST; 30 fathoms; wind: direction NW, force light; sea gentle; sky overcast 1/2 (alto-stratus); visibility perfect; barometer 30.06; bathythermograph slide 33; bottom sand, gravel, clay.											
0	12.1	7.5	78.5	...	...	12.3	2.0	1.05	9	0.09	5
50	4.2	7.4	75.8	...	...	12.3	2.9	1.05	8	0.10	5
Cruise V; station 15; July 26; 1345 EST; 101 fathoms; wind: direction NW, force light; sea gentle; sky overcast 1/2 (cirrus, cumulus); visibility perfect; barometer 30.08; bathythermograph slides 39, 40; bottom silt, clay.											
0	13.4	7.6	77.2	...	...	12.3	2.7	1.05	4	0.10	5
10	7.3	7.6	78.2	...	...	12.3	2.9	1.05	7	0.10	5
180	3.7	7.4	76.5	...	...	12.3	2.9	1.05	5	0.11	5
Cruise V; station 16; July 27; 0910 EST; 42 fathoms; wind: direction NW, force moderate; sea gentle; sky clear; visibility perfect; barometer 30.06; bathythermograph slide 45; bottom mostly clay, sand, gravel.											
0	7.2	7.6	77.2	...	...	12.3	3.1	1.05	6	0.11	5
83	3.8	7.4	75.4	...	...	12.3	3.0	1.05	7	0.11	5
Cruise V; station 64; July 27; 1108 EST; 92 fathoms; wind: direction SW, force light; sea gentle; sky overcast 1/4 (cumulus); visibility good; barometer 30.23; bathythermograph slides 48, 49; bottom clay.											
0	12.7	7.6	77.3	...	...	12.3	3.0	1.10	7	0.11	5
12	5.5	7.6	77.1	...	...	12.3	2.8	1.10	7	0.11	5
140	3.8	7.4	77.6	...	...	12.3	3.0	1.10	6	0.11	5
Cruise V; station 20; July 28; 1007 EST; 7 to 15 fathoms; wind: direction SSW, force light; sea gentle; sky overcast 3/4 (stratus•cumulus); visibility fair; bathythermograph slide 63.											
0	...	...	77.8	...	...	12.3	...	1.10	8	...	6

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	O_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	SiO_2 (ppm)
Cruise V; station 65; July 28; 1524 EST; 5 to 11 fathoms; wind: direction SSW, force gentle; sea gentle; sky clear; visibility perfect; bathythermograph slide 64.											
0	...	...	77.5	...	...	12.3	...	1.15	11	...	6
Cruise V; station 66; July 28; 1720 EST; 30 fathoms; wind: direction SW, force light; sea calm; sky overcast 1/4 (cirrus, alto-stratus); visibility perfect; barometer 29.76; bathythermograph slide 65; bottom clay, some sand.											
0	16.7	7.7	78.2	...	...	12.3	3.0	1.10	5	0.14	5
53	4.6	7.4	85.7	...	...	12.3	3.2	1.10	7	0.14	6
Cruise V; station 23; July 30; 1516 EST; 21.5 fathoms; bathythermograph slide 76; bottom clay, some sand.											
0	...	...	78.2	...	...	12.3	...	1.10	9	...	6
Cruise V; station 21; July 30; 1616 EST; sea gentle; sky overcast 1 (cirrus, cumulus) visibility good; bathythermograph slide 77; bottom clay.											
0	17.8	7.8	78.2	...	...	12.3	2.3	1.10	9	0.13	5
35	5.5	7.4	79.6	...	...	12.3	3.0	1.10	9	0.12	7
Cruise V; station 69; July 31; 1331 EST; 32 fathoms; wind: direction NE, force gentle; sea gentle; sky overcast 3/4 (cirrus, stratus, cumulus); visibility good; barometer 30.12; bathythermograph slide 88; bottom clay, some sand.											
0	...	...	76.5	...	...	12.3	...	1.10	27	...	5
Cruise V; station 27; July 31; 1701 EST; 18 fathoms; wind: direction NE, force fresh; sea moderate; sky overcast 1/2 (cirrus, cumulus); visibility good; barometer 30.06; bathythermograph slide 92.											
0	17.1	7.8	77.5	...	...	12.3	2.8	1.10	7	0.15	5
30	5.2	7.3	88.5	...	...	12.3	2.8	1.10	7	0.15	5

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	O_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	SiO_2 (ppm)
Cruise V; station 61; August 2; 1055 EST; 30 fathoms; wind: direction NE, force moderate; sea choppy; sky overcast 1/2 (cirrus, alto-cumulus); visibility perfect; bathythermograph slide 102; bottom clay, some silt.											
0	15.8	7.5	80.2	...	...	12.4	3.1	1.25	7	0.17	5
54	9.1	7.4	72.8	...	...	12.3	3.2	1.20	6	0.18	5
Cruise V; station 9; August 2; 1520 EST; 37.5 fathoms; wind: direction NE, force moderate; sea heavy; visibility excellent; barometer 30.03; bathythermograph slide 103.											
0	...	...	80.2	...	...	12.4	...	1.25	7	...	5
Cruise VI; station 1; August 12; 1146 EST; 15 fathoms; wind: direction SW, force light; sea gentle; sky overcast 1 (stratus, cumulus); visibility good; barometer 29.97; bathythermograph slide 5; Secchi disc 9.8 meters; bottom sand.											
0	...	7.4	78.7	9.5	...	12.3	2.7	1.05	...	0.10	6
9	15.3	7.4	82.1	10.0	...	12.3	2.7	1.10	...	0.10	6
18	10.5	7.5	86.2	11.7	...	12.3	2.7	1.05	...	0.10	6
27	7.0	7.4	81.1	11.8	...	12.3	2.7	1.15	...	0.10	5
Cruise VI; station 62; August 12; 1536 EST; 30 fathoms; wind: force calm; sea gentle; sky clear; visibility good; barometer 30.00; bathythermograph slide 7; Secchi disc 11.3 meters; bottom sand.											
0	17.1	7.5	80.2	11.8	...	12.3	1.6	1.10	7	0.10	6
20	6.4	7.4	84.1	11.9	...	12.3	3.0	1.10	6	0.09	6
50	5.2	7.3	81.8	9.4	...	12.3	2.8	1.10	9	0.09	6

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	O_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	SiO_2 (ppm)
Cruise VI; station 71; August 13; 1246 EST; 102 fathoms; wind: direction SSW, force light; sea calm; sky overcast 1/4 (cumulus); visibility perfect; barometer 30.02; bathythermograph slide 15; Secchi disc 12.5 meters; bottom sand, some clay.											
0	16.6	7.6	79.5	8.9	...	12.3	3.1	1.15	9	0.09	5
30	5.8	7.4	77.5	11.8	...	12.3	3.1	1.05	8	0.09	5
60	4.2	7.3	82.7	12.0	...	12.3	3.1	1.05	6	0.09	5
90	3.9	7.3	82.7	12.2	...	12.3	3.1	1.05	6	0.09	5
180	3.8	7.3	83.1	12.7	...	12.9	3.1	1.05	7	0.09	5
Cruise VI; station 72; August 13; 1713 EST; 31 fathoms; wind: direction SSE, force fresh; sea choppy; sky clear; visibility good; barometer 29.74; bathythermograph slide 17; bottom silt, some sand and detritus.											
0	15.1	7.4	80.2	10.3	...	12.3	3.1	1.20	9	0.12	5
20	8.3	7.3	81.0	10.5	...	12.3	3.1	1.10	7	0.10	6
40	7.3	7.2	84.1	10.1	...	12.3	3.0	1.10	8	0.09	6
Cruise VI; station 72; August 14; 0815 EST; 35 fathoms; wind: direction WNW, force gentle; sea gentle; sky overcast 1 (stratus, cumulus); visibility good; barometer 29.80; bathythermograph slide 18.											
0	...	...	79.2	...	...	12.3	...	1.15	9	...	5
Cruise VI; station 73; August 14; 1033 EST; 17.5 fathoms; wind: direction NW, force fresh; sea moderate; sky clear; visibility good; barometer 29.84; bathythermograph slide 19; bottom sand.											
0	...	...	79.2	...	...	12.3	...	1.10	...	...	5
Cruise VI; station 74; August 14; 1450 EST; 6 fathoms; wind: direction NW, force fresh; sea choppy; sky clear; visibility perfect; bathythermograph slide 20.											
0	...	...	78.8	...	...	12.3	...	1.10	...	...	5

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	0_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	$Si0_2$ (ppm)
Cruise VI; station 72; August 14; 1632 EST; 10 fathoms; wind: direction NW, force fresh; sea gentle; sky clear; visibility perfect; bathythermograph slide 21.											
0	...	...	79.9	...	...	12.3	...	1.10	...	...	5
Cruise VI; station 75; August 15; 1237 EST; 8 fathoms; wind: direction NW, force moderate; sea choppy; sky overcast 1/4 (cirrus, cumulus); visibility perfect; barometer 30.06; bathythermograph slide 28; Secchi disc 11.3 meters; bottom sand.											
0	16.5	7.6	77.8	...	...	12.3	3.1	1.10	9	0.09	5
14	16.1	7.5	79.9	...	...	12.3	2.9	1.05	...	0.09	6
Cruise VI; station 76; August 15; 1535 EST; 44 fathoms; wind: direction NW, force gentle; sea choppy; sky overcast 1/2 (cirrus, cumulus); visibility perfect; bathythermograph slide 30; Secchi disc 11.9 meters; bottom silt, sand.											
0	16.6	7.6	78.2	9.7	...	12.3	3.1	1.15	...	0.08	5
18	8.3	7.6	76.4	12.7	...	12.3	3.1	1.15	...	0.08	6
28	6.2	7.5	76.4	13.3	...	12.3	3.1	1.15	...	0.08	6
40	5.8	7.4	78.4	12.9	...	12.3	3.1	1.15	...	0.08	6
78	4.6	7.4	76.2	13.7	...	12.3	3.1	1.15	...	0.08	6
Cruise VI; station 77; August 15; 1717 EST; 7 fathoms; wind: direction NW, force gentle; sea calm; sky overcast 1/4 (cirrus); visibility perfect; bathythermograph slide 31; Secchi disc 4.3 meters; bottom silt, sand, detritus.											
0	17.8	7.3	...	10.1	...	13.3	...	1.05	...	0.24	7
5	16.1	7.4	...	9.6	...	12.4	...	1.05	...	0.17	7
10	11.6	7.4	...	10.9	...	12.4	...	1.10	...	0.12	7

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	O_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	SiO_2 (ppm)
Cruise VI; station 78; August 16; 1332 EST; 192 to 197 fathoms; wind: direction WNW, force moderate; sea choppy; sky clear; visibility perfect; barometer 30.08; bathythermograph slides 38, 39, 40, 41; Secchi disc 15.2 meters.											
0	...	7.4	78.2	10.5	...	12.3	3.1	1.05	...	0.08	5
10	1/ 11.6	7.4	79.5	10.4	...	12.3	3.0	1.05	...	0.08	6
100	3.9	7.2	83.1	12.4	...	12.3	3.2	1.05	...	0.09	5
200	3.8	7.2	80.5	12.6	...	12.3	4.4	1.05	...	0.10	5
250	3.7	7.2	79.7	12.6	...	12.3	4.4	1.10	...	0.10	5
300	3.7	7.1	80.1	12.4	...	12.3	3.1	1.00	...	0.10	5
350	3.6	7.2	78.3	12.2	...	12.3	3.1	1.05	...	0.10	6
1/ Value questionable											
Cruise VI; station 79; August 17; 1145 EST; 191 fathoms; wind: direction NW, force moderate; sea choppy; sky clear; visibility perfect; barometer 30.21; bathythermograph slide 51; bottom silt, clay.											
0	1/ 14.0	7.4	78.5	12.4	...	12.3	3.1	1.10	6	0.15	5
10	12.6	7.4	77.9	10.7	...	12.3	3.1	1.10	...	0.14	5
100	4.0	7.2	77.6	10.9	...	12.3	3.1	1.10	...	0.10	5
200	3.8	7.2	81.6	12.4	...	12.3	3.1	1.10	...	0.10	5
250	3.8	7.2	78.8	11.9	...	12.3	3.1	1.10	...	0.09	5
300	3.8	7.2	76.5	10.3	...	12.3	3.1	1.10	...	0.09	6
350	3.6	7.2	76.5	12.7	...	12.3	3.1	1.10	...	0.09	5
1/ Bathythermograph temperature											

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18} \times 10^6$)	O_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	SiO_2 (ppm)
Cruise VI; station 80; August 18; 1444 EST; 100 fathoms; wind: direction W, force gentle; sea gentle; sky clear; visibility perfect; barometer 30.14; bathythermograph slide 65; Secchi disc 10.1 meters; bottom silt.											
0	15.1	7.6	77.8	10.7	...	12.3	2.6	1.05	2	0.09	5
10	14.1	7.6	66.1	10.7	...	12.3	2.6	1.05	4	0.08	5
50	4.4	7.2	70.0	12.3	...	12.3	2.6	1.05	5	0.08	5
150	4.0	7.3	73.1	13.0	...	12.3	2.6	1.05	4	0.08	5
175	3.8	7.6	79.1	13.0	...	12.3	2.9	1.05	7	0.09	6
Cruise VI; station 81; August 19; 0810 EST; 20 to 37 fathoms; wind: direction SW, force light; sea gentle; sky clear; visibility perfect; barometer 30.16; bathythermograph slide 71.											
0	...	...	76.8	...	...	12.3	...	1.10	...	...	4
Cruise VI; station 82; August 19; 1422 EST; 27 fathoms; wind: direction SW, force light; sea gentle; sky clear; visibility good (haze); bathythermograph slide 85; Secchi disc 11.3 meters; bottom sand, silt, gravel.											
0	14.7	7.6	76.5	10.2	...	12.3	2.7	1.10	...	0.09	5
12	11.1	7.4	81.7	11.7	...	12.3	2.7	1.10	...	0.09	5
24	8.5	7.2	81.5	11.2	...	12.3	2.7	1.10	...	0.09	6
36	7.1	7.2	83.4	11.0	...	12.3	2.6	1.10	...	0.09	6
48	6.6	7.2	80.7	11.3	...	12.3	2.6	1.10	...	0.09	6
Cruise VI; station 83; August 20; 0835 EST; 9 fathoms; wind: direction W, force light; sea calm; sky clear; visibility fair (haze); barometer 30.10; bathythermograph slide 86; bottom sand, gravel, clay.											
0	...	...	76.8	...	...	12.3	...	1.15	...	...	5
Cruise VI; station 84; August 20; 1003 EST; 10 to 11 fathoms; wind: direction SW, force light; sea gentle; sky overcast 1/4 (stratus); visibility fair (haze); bathythermograph slide 87; bottom sand, gravel.											
0	...	...	77.2	...	...	12.3	...	1.10	...	...	5

Table 5.--Hydrographic station data, 1953 (Cisco)(cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	O_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	SiO_2 (ppm)
Cruise VI; station 85; August 20; 1246 EST; 30 fathoms; wind: direction SW, force light; sea gentle; sky overcast 1/2 (alto-stratus); visibility good; barometer 30.12; bathythermograph slide 91; Secchi disc 10.7 meters; bottom sand, silt.											
0	17.5	7.5	77.8	10.0	...	12.3	2.8	1.05	6	0.09	5
17	14.7	7.4	77.6	10.6	...	12.3	2.6	1.05	6	0.09	5
34	7.8	7.2	81.5	11.8	...	12.3	2.6	1.05	7	0.09	5
51	5.6	7.2	82.9	11.4	...	...	2.8	1.05	8	0.10	7
Cruise VI; station 86; August 21; 1132 EST; 13 to 15 fathoms; wind: force calm; sea calm; sky overcast 3/4 (stratus); visibility fair (fog); barometer 30.20; bathythermograph slide 100; Secchi disc 10.4 meters; bottom silt, sand.											
0	18.0	7.6	77.2	9.5	...	12.3	3.1	1.10	...	0.10	5
15	15.4	7.5	76.7	10.6	...	12.3	2.9	1.10	...	0.10	5
30	12.4	7.4	79.2	10.6	...	12.3	3.1	1.10	...	0.10	5
Cruise VI; station 85; August 21; 1341 EST; 27.5 fathoms; wind: force calm; sea calm; sky overcast 3/4 (stratus); visibility fair (fog); barometer 30.20; bathythermograph slide 106.											
0	...	...	77.2	...	...	12.3	...	1.10	...	...	4
Cruise VI; station 87; August 21; 1551 EST; 24 fathoms; wind: direction W, force light; sea gentle; sky overcast 1/4 (cumulus); visibility good; barometer 30.19; bathythermograph slide 112; Secchi disc 8.5 meters; bottom clay.											
0	18.0	7.6	75.9	...	...	...	3.1	1.10	11	0.11	4
13	15.8	7.4	76.6	10.5	...	...	2.8	1.05	11	0.12	4
26	11.3	7.2	77.5	10.5	...	...	2.8	1.05	8	0.12	5
39	8.8	7.2	79.2	10.7	...	...	2.8	1.05	6	0.11	5

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	O_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	SiO_2 (ppm)
Cruise VI; station 88; August 23; 1029 EST; 108-113 fathoms; wind: direction NW, force moderate; sea choppy; sky overcast 3/4 (cumulus); visibility good; barometer 30.08; bathythermograph slide 158; Secchi disc 9.4 meters; bottom silt, sand.											
0	17.3	7.8	76.0	9.8	...	12.3	2.7	1.10	7	0.15	5
10	14.6	7.8	77.2	11.8	...	12.3	3.3	1.05	5	0.15	5
20	7.8	7.7	82.3	12.7	...	12.3	2.9	1.05	8	0.12	5
100	4.0	7.4	76.4	12.9	...	12.3	2.9	1.05	9	0.11	5
190	3.8	7.3	79.6	12.3	...	12.3	2.9	1.05	8	0.13	5
Cruise VI; station 89; August 23; 1205 EST; 13 fathoms; wind: direction NW, force gentle; sea choppy; sky clear; visibility good (haze); bathythermograph slide 159; bottom sand, gravel.											
0	...	...	75.9	...	...	12.3	...	1.05	9	...	5
Cruise VI; station 90; August 23; 1420 EST; 11.5 fathoms; wind: direction NW, force light; sea gentle; sky overcast 1/4 (cirrus); visibility good (haze); bathythermograph slide 164.											
0	...	...	77.5	...	...	12.3	...	1.15	8	...	4
Cruise VI; station 74; August 23; 1558 EST; 21 fathoms; wind: direction NW, force light; sea gentle; sky overcast 1/4 (cirrus); visibility fair (haze); bathythermograph slide 168.											
0	...	...	76.8	...	...	12.3	...	1.20	9	...	5
Cruise VI; station 90; August 24; 1021 EST; wind: direction NW, force light; sea calm; sky (cirrus); visibility fair; barometer 30.01; bathythermograph slide 175.											
0	...	...	77.8	...	...	12.3	...	1.20	44	...	5

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	O_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	SiO_2 (ppm)
Cruise VI; station 1; August 24; 1123 EST; 15 fathoms; wind: direction W, force light; sea gentle; sky overcast 1/2 (cirrus, cumulus); visibility good (haze); bathythermograph slide 178; Secchi disc 9.1 meters; bottom sand.											
0	19.0	7.7	78.5	9.3	...	12.3	2.8	1.15	6	0.13	4
9	17.5	7.8	81.7	9.9	...	12.3	2.9	1.15	8	0.13	4
18	14.4	7.4	79.8	10.7	...	12.3	2.7	1.15	12	0.12	5
27	7.0	7.3	75.9	11.7	...	12.3	2.3	1.15	6	0.12	5
Cruise VI; station 62; August 24; 1550 EST; 31.5 fathoms; wind: force calm; sea calm; sky overcast 1/2 (stratus); visibility good (haze); barometer 29.98; bathythermograph slide 181; Secchi disc 12.2 meters; bottom sand.											
0	20.8	7.6	78.5	9.0	...	12.3	2.6	1.10	7	0.33	5
15	16.6	7.7	79.6	9.6	...	12.3	2.5	1.10	5	0.11	5
35	6.7	7.4	80.1	10.6	...	12.3	2.7	1.10	4	0.10	5
55	4.7	7.3	80.0	11.3	...	12.3	2.7	1.10	4	0.10	6
Cruise VII; station 2; September 2; 1215 EST; 48 fathoms; wind: direction E, force gentle; sea choppy; sky overcast 3/4 (cumulus); visibility good (haze); barometer 29.84; bathythermograph slide 6; bottom clay, some sand and gravel.											
0	20.5	7.6	80.2	9.8	...	12.0	2.8	1.15	7	0.13	5
40	5.7	7.3	79.2	13.1	...	12.0	2.9	1.10	7	0.13	5
80	5.1	7.3	80.5	13.0	...	12.0	2.9	1.05	10	0.13	6
Cruise VII; station 91; September 2; 1644 EST; 52 fathoms; wind: direction NE, force gentle; sea gentle; sky clear; bathythermograph slide 12; bottom clay, gravel, some sand.											
0	...	...	79.5	...	...	12.0	...	1.20	...	...	4

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	O_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	SiO_2 (ppm)
Cruise VII; station 91; September 3; 0935 EST; 20 fathoms; wind: direction S, force moderate; sea choppy; sky clear; visibility good (haze); bathythermograph slide 15.											
0	...	...	79.9	...	...	12.0	...	1.20	...	...	5
Cruise VII; station 10; September 4; 1420 EST; 8 fathoms; wind: direction WNW, force strong; sea gentle; sky overcast 1/2 (cumulus); visibility perfect; barometer 29.68; bathythermograph slide 18; bottom clay, silt.											
0	21.9	7.4	...	7.4	...	12.0	3.2	2.10	...	0.27	8
14	17.7	6.9	...	5.9	...	12.7	3.2	1.95	29	0.26	8
Cruise VII; station 92; September 6; 1134 EST; 155 fathoms; wind: direction W, force fresh; sea moderate; sky overcast 1/4 (cirrus, cumulus); visibility perfect; barometer 29.89; bathythermograph slide 40; bottom clay.											
0	14.9	7.4	79.5	10.5	...	12.2	3.2	1.15	27	0.17	5
15	8.0	7.4	84.0	11.0	...	12.2	3.2	1.10	15	0.11	5
24	5.7	7.2	84.3	12.5	...	12.2	3.2	1.05	9	0.12	5
270	3.6	7.2	84.3	11.9	...	12.2	3.2	1.05	9	0.12	5
Cruise VII; station 93; September 7; 0901 EST; 19 fathoms; wind: direction WNW, force moderate; sea gentle; sky clear; visibility perfect; bathythermograph slide 47.											
0	...	...	79.9	...	...	12.2	...	...	...	...	6
Cruise VII; station 52; September 7; 1032 EST; 48 fathoms; wind: direction WNW, force moderate; sea gentle; sky clear; visibility perfect; barometer 30.09; bathythermograph slide 49; Secchi disc 5.5 meters; bottom clay, some gravel.											
0	14.3	7.4	79.9	8.5	...	11.9	3.2	1.05	10	0.12	5
30	7.6	7.2	82.7	9.9	...	11.9	3.3	1.05	10	0.10	5
70	5.0	7.2	83.2	10.4	...	11.9	3.2	1.05	11	0.09	5

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	0_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	$Si0_2$ (ppm)	
Cruise VII; station 53; September 7; 1346 EST; 13.5 fathoms; wind: direction WNW, force fresh; sea gentle; sky overcast 3/4 (cirrus, cumulus); visibility perfect; bathythermograph slide 50.												
0	...	...	79.5	...	...	11.9	...	...	...	...		5
Cruise VII; station 63; September 8; 0934 EST; 23 fathoms; wind: direction W, force light; sea calm; sky clear; visibility perfect; barometer 30.25; bathythermograph slide 56; Secchi disc 11.3 meters; bottom gravel, clay, sand.												
0	8.1	7.4	78.5	...	...	11.9	3.2	1.05	11	0.10		5
40	4.0	7.2	76.7	...	...	11.8	3.1	1.05	12	0.09		5
Cruise VII; station 12; September 8; 1151 EST; 109 fathoms; wind: force calm; sea calm; sky clear; visibility perfect; barometer 30.26; bathythermograph slides 60, 61; Secchi disc 10.7; bottom clay.												
0	11.0	7.4	78.2	11.9	...	11.8	3.2	1.05	15	0.12		5
27	5.5	7.4	80.1	12.3	...	11.8	3.0	1.05	18	0.11		5
200	3.7	7.4	78.2	12.8	...	11.8	3.2	1.05	15	0.10		6
Cruise VII; station 2; September 11; 1913 EST; 45 fathoms; wind: direction E, force light; sea calm; sky overcast 1 (stratus, cumulus); visibility fair (showers); barometer 29.68; bathythermograph slide 94; Secchi disc 8.8 meters.												
0	17.4	8.0	80.7	9.4	...	12.4	3.2	1.10	15	0.10		5
40	9.8	7.6	81.5	10.7	...	12.4	3.1	1.10	15	0.10		5
80	4.8	7.3	83.9	12.5	...	12.4	3.1	1.05	16	0.10		6

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	O_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	SiO_2 (ppm)
Cruise VIII;station 10; September 27; 1716 EST; 6 fathoms; wind: direction WNW, force moderate; sea gentle; sky overcast 1/2 (cirrus, stratus, cumulus); visibility good; barometer 29.78; bathythermograph slide 11; bottom clay.											
0	14.5	7.4	...	9.1	...	13.1	2.8	1.85	13	0.20	9
12	14.4	7.4	...	10.3	...	13.1	2.8	1.85	18	0.19	9
Cruise VIII; station 63; September 28; 1446 EST; 36 fathoms; wind: direction WNW, force fresh; sea moderate; sky overcast 1/2 (cumulus); visibility perfect; barometer 29.80; bathythermograph slide 15; Secchi disc 10.1 meters; bottom clay, some gravel.											
0	8.9	7.4	79.5	9.5	...	12.7	2.8	1.05	17	0.12	6
25	5.9	7.2	74.9	10.4	...	12.7	2.8	1.05	22	0.13	4
65	4.5	7.2	75.5	10.7	...	12.7	2.9	1.05	16	0.11	6
Cruise VIII; station 63; September 29; 0928 EST; 32 fathoms; wind: direction ESE, force strong; sea rough; sky overcast 3/4 (stratus); bathythermograph slide 17.											
0	...	...	79.5	...	...	12.7	...	...	...	...	...
Cruise VIII; station 96; September 30; 1548 EST; 12 to 15 fathoms; wind: direction W, force strong; sea choppy; sky clear;visibility perfect; barometer 30.35; bathythermograph slide 25; bottom sand, clay, gravel.											
0	9.3	7.5	79.2	8.6	...	12.6	2.9	1.05	23	0.12	6
27	9.3	7.5	80.2	9.7	...	12.6	2.9	1.10	26	0.11	5
Cruise VIII; station 97; September 30; 1659 EST; 30 fathoms; wind: direction W, force moderate; sea choppy; sky clear; visibility perfect; barometer 30.06; bathythermograph slide 26.											
0	...	...	78.4	...	...	12.6	...	...	...	...	...
Cruise VIII; station 97; October 1; 0758 EST; 31 fathoms; wind: direction SSW, force light; sea gentle; sky clear; visibility perfect; barometer 30.24; bathythermograph slide 27.											
0	...	...	80.1	...	...	12.6	...	...	...	...	...

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18} \times 10^6$)	O_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	SiO_2 (ppm)
Cruise VIII; station 12; October 1; 1031 EST; 110 fathoms; wind: direction SE, force gentle; sea gentle; sky clear; visibility perfect; barometer 30.21; bathythermograph slide 32; bottom clay, some shale.											
0	8.0	7.4	79.9	9.8	...	12.6	2.9	1.05	17	0.11	6
27	7.8	7.3	78.3	10.4	...	12.6	2.9	1.10	17	0.11	6
35	7.7	7.3	78.4	11.0	...	12.6	2.9	1.10	12	0.11	6
75	4.4	7.2	79.1	10.5	...	12.6	2.8	1.05	23	0.11	6
195	3.7	7.2	78.4	11.1	...	12.6	2.8	1.05	14	0.13	5
Cruise VIII; station 11; October 1; 1306 EST; 85 fathoms; wind: direction SE, force gentle; sea gentle; sky clear; visibility perfect; barometer 30.19; bathythermograph slide 36; Secchi disc 10.4 meters; bottom clay, sand, gravel.											
0	10.4	7.4	78.2	8.9	...	12.6	2.8	1.05	19	0.12	5
43	5.5	7.3	80.2	10.9	...	12.6	2.8	1.05	49	0.12	6
150	3.9	7.2	81.5	...	...	12.6	2.8	1.05	23	0.11	6
Cruise VIII; station 59; October 2; 1136 EST; 7 fathoms; wind: direction S, force strong; sea choppy; sky clear; visibility good (haze); barometer 29.99; bathythermograph slide 40; bottom sand, clay.											
0	...	...	80.2	...	...	12.6	...	...	...	...	...
Cruise VIII; station 9; October 2; 1435 EST; 27.5 fathoms; wind: direction SSW, force strong; sea choppy; sky clear; visibility haze; barometer 29.96; bathythermograph slide 41; bottom clay, sand.											
0	...	...	79.5	...	...	12.6	...	...	...	...	...

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	O_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	SiO_2 (ppm)
Cruise VIII; station 61; October 2; 1558 EST; 25 fathoms; wind: direction SSW, force strong; sea choppy; sky clear; visibility good (haze); bathythermograph slide 42; Secchi disc 6.7 meters; bottom clay, sand.											
0	12.0	7.5	79.7	8.5	...	12.6	2.8	1.10	13	0.12	6
24	11.0	7.4	80.4	8.2	...	12.6	2.8	1.10	20	0.12	5
48	9.4	7.4	82.9	8.6	...	12.6	2.8	1.10	8	0.12	6
Cruise VIII; station 61; October 3; 0836 EST; 22 fathoms; wind: direction SW, force light; sea gentle; sky overcast 3/4 (alto-stratus); visibility good (thunderstorms); barometer 29.85; bathythermograph slide 43.											
0	...	...	79.7	...	...	12.6	...	...	...	...	...
Cruise VIII; station 4; October 3; 1400 EST; 9 fathoms; wind: direction W, force strong; sea choppy; sky clear; visibility good (haze); barometer 29.86; bathythermograph slide 47; bottom sand.											
0	12.5	7.4	79.2	9.0	...	12.7	2.8	1.05	16	0.12	8
17	11.1	7.4	77.6	9.3	...	12.7	2.8	1.15	41	0.11	6
Cruise VIII; station 2; October 4; 1152 EST; 46 fathoms; wind: direction NW, force fresh; sea choppy; sky overcast 1/4 (cirrus, cumulus); visibility perfect; barometer 30.26; bathythermograph slide 59; bottom clay, gravel.											
0	12.2	7.4	79.5	9.5	...	12.7	2.8	1.10	28	0.13	7
28	10.9	7.2	80.3	9.7	...	12.7	2.6	1.10	28	0.16	8
56	7.9	7.2	79.4	9.5	...	12.7	2.7	1.10	19	0.15	6
85	7.2	7.2	78.7	10.4	...	12.7	2.8	1.10	22	0.13	7

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18} \times 10^6$)	O_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	SiO_2 (ppm)
Cruise VIII; station 43; October 4; 1427 EST; 6 fathoms; wind: direction NW, force fresh; sea choppy; sky overcast 1/4 (cirrus, cumulus); visibility perfect; barometer 30.22; bathythermograph slide 65; Secchi disc 7.0 meters; bottom bedrock.											
0	12.6	7.4	79.9	8.8	...	12.8	2.8	1.10	16	0.14	6
10	12.4	7.4	80.6	8.3	...	12.8	2.8	1.10	17	0.14	6
Cruise IX; station 2; October 14; 1300 EST; 52 fathoms; wind: direction NW, force moderate; sea gentle; sky clear; visibility good (haze); barometer 29.98; bathythermograph slide 6; Secchi disc 9.8 meters; bottom sand, clay, gravel.											
0	11.2	7.5	78.9	9.8	...	13.0	3.3	1.05	27	0.12	7
50	10.0	7.5	82.1	...	...	12.8	3.3	1.10	25	0.13	8
1/98	4.9	7.4	81.1	10.5	...	11.0	3.0	1.05	51	0.20	...
Cruise IX; station 61; October 15; 1044 EST; 27.5 fathoms; wind: direction S, force light; sea gentle; sky overcast 1/4 (cirrus); visibility good (fog); barometer 30.16; bathythermograph slide 16.											
0	...	...	78.6	...	...	12.6	...	...	...	...	...
Cruise IX; station 9; October 15; 1613 EST; 28 fathoms; wind: direction SW, force light; sea gentle; sky clear; visibility good (haze); bathythermograph slide 17.											
0	...	...	78.3	...	...	12.6	...	...	...	...	...

1/ Sample contained mud

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	0_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	$Si0_2$ (ppm)
Cruise IX; station 9; October 16; 0836 EST; 28 fathoms; wind: direction S, force gentle; sea gentle; sky clear; visibility good (haze); barometer 30.14; bathythermograph slide 18; bottom sand (fine), clay.											
0	11.5	7.7	78.3	9.4	...	12.6	3.1	1.10	39	0.14	9
46	7.1	7.4	83.1	10.0	...	12.9	2.8	1.05	46	0.13	9
Cruise IX; station 43; October 16; 1654 EST; 8 fathoms; wind: force calm; sea calm; sky clear; visibility good (haze); barometer 30.10; bathythermograph slide 29.											
0	...	...	80.0	...	...	12.7	...	...	...	...	...
Cruise IX; station 43; October 17; 1108 EST; 13 fathoms; wind: direction SSW, force moderate; sea gentle; sky overcast 1/2 (stratus); visibility good (haze); barometer 30.06; bathythermograph slide 30.											
0	...	...	...	...	...	12.7	3.0	1.20	26	...	...
Cruise IX; station 43; October 17; 1328 EST; 6 fathoms; wind: direction S, force moderate; sea gentle; sky overcast 3/4 (stratus, cumulus); visibility good (haze); bathythermograph slide 31.											
0	...	...	80.7	...	...	12.7	...	...	...	...	...
Cruise IX; station 98; October 17; 1557 EST; 10.5 fathoms; wind: direction S, force moderate; sea gentle; sky overcast 3/4 (stratus, cumulus); visibility good; barometer 29.96; bathythermograph slide 32.											
0	...	...	...	...	...	12.7	3.0	1.10	25	...	...

Table 5.--Hydrographic station data, 1953 (Cisco) (cont'd)

Depth (meters)	Reversing thermometer temperature (degrees C.)	pH	Specific conductance ($K_{18}x10^6$)	O_2 (ppm)	Total alkalinity (ppm)	Ca (ppm)	Mg (ppm)	Na (ppm)	Total P ug/L (ppb)	Dissolved N (ppm)	SiO_2 (ppm)
Cruise IX; station 43; October 18; 1032 EST; 7 fathoms; wind: direction WSW, force moderate; visibility perfect; barometer 29.88; bathythermograph slide 33.											
0	...	...	81.4	...	...	12.7	...	...	...	...	...
Cruise IX; station 98; October 18; 1147 EST; 10.5 fathoms; wind: direction WSW, force fresh; sea choppy; sky clear; visibility perfect; barometer 29.88; bathythermograph slide 34.											
0	...	...	79.6	...	...	12.7	...	...	...	...	...
Cruise IX; station 99; October 18; 1303 EST; 10.5 fathoms; wind: direction W, force fresh; sea choppy; sky clear; visibility good; bathythermograph slide 35.											
0	...	...	...	...	...	12.7	2.9	1.15	18	...	...
Cruise IX; station 100; October 20; 1542 EST; 4 fathoms; wind: direction SE, force moderate; sea gentle; sky overcast 1/4 (cumulus); visibility perfect; barometer 30.12; bathythermograph slide 44.											
0	...	...	80.0	...	...	12.8	...	...	...	...	...
Cruise IX; station 1; October 21; 1515 EST; 38 fathoms; wind: direction SE, force gentle; sea gentle; sky overcast 1/4 (cirrus); visibility good (haze); barometer 30.18; bathythermograph slides 51, 52.											
0	...	...	80.7	...	...	12.8	...	...	...	...	...

Table 6.--Observations at bathythermograph casts, cruise VI, 1952 (Cisco)

Bathythermograph number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Station number
					Surface (°C.)	Metalimnion				Deepest reading		
						Upper limits		Lower limits				
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	
1	8/12	0919	45°43'15"	84°17'05"	16.1	15.9	6.1	6.0	25.9	5.0	35.7	...
2	8/12	0944	45°45'00"	84°12'50"	16.9	16.6	5.8	5.9	18.3	4.4	42.1	...
3	8/12	1019	45°49'20"	84°05'45"	17.0	17.0	0	6.0	24.3	4.2	96.0	...
4	8/12	1049	45°52'05"	84°01'05"	16.5	15.7	10.4	6.7	20.4	3.9	61.0	...
5	8/12	1132	45°56'20"	83°44'00"	16.4	15.8	8.5	5.9	24.4	5.3	29.0	...
6	8/12	1135	45°56'25"	83°43'45"	17.6	16.0	8.2	5.6	28.3	5.0	41.8	...
7	8/12	1153	45°59'05"	83°53'15"	17.8	17.6	5.2	6.4	22.6	5.8	33.5	...
8	8/12	1319	46°08'30"	84°01'30"	17.4	...	...	...	...	17.4	15.2	...
9	8/13	1020	46°43'40"	84°42'45"	16.3	15.8	14.3	7.5	36.3	4.6	59.4	...
10	8/13	1050	46°36'10"	84°47'40"	16.2	15.8	16.5	8.9	31.4	6.8	48.8	...
11	8/13	1109	46°37'50"	84°50'45"	16.3	15.9	17.7	8.0	45.7	4.7	100.6	1
12	8/13	1230	46°42'45"	84°53'50"	16.4	15.7	14.6	7.0	52.4	4.8	94.5	...
13	8/13	1327	46°47'06"	85°02'15"	16.6	...	...	...	...	15.6	12.5	...
14	8/13	1436	46°47'30"	85°17'20"	16.8	14.9	14.6	12.7	24.4	12.5	32.0	...
15	8/13	1453	46°47'35"	85°21'05"	16.7	...	...	...	...	4.7	55.2	...
16	8/13	1545	46°48'00"	85°32'15"	15.0	15.0	0	5.3	42.7	4.1	149.4	2
17	8/13	1715	46°47'35"	85°35'45"	15.5	15.5	0	5.1	42.7	4.0	128.0	...
18	8/13	1748	46°46'50"	85°42'40"	16.5	16.5	0	6.4	39.6	4.5	82.3	...
19	8/13	1820	46°45'50"	85°50'30"	16.9	16.9	0	5.4	48.8	4.4	91.4	...
20	8/13	1921	46°44'06"	85°59'00"	16.0	16.0	4.3	7.6	42.1	7.6	42.1	3
21	8/14	0858	46°44'06"	85°59'00"	16.0	15.7	8.5	7.8	38.1	7.8	38.1	3
22	8/14	0931	46°44'06"	85°59'00"	...	...	...	...	...	...	...	...
23	8/14	1053	46°43'30"	86°04'25"	16.6	16.4	11.3	14.4	21.3	14.4	21.3	4
24	8/14	1138	46°43'15"	86°08'50"	16.8	15.4	19.8	7.5	36.0	5.8	55.5	...
25	8/14	1220	46°43'40"	86°18'30"	16.0	16.0	0	6.5	38.1	4.2	82.9	...
26	8/14	1241	46°43'45"	86°23'50"	15.5	15.5	0	6.0	32.9	4.0	201.2	5
27	8/14	1358	46°40'40"	86°28'00"	15.8	15.8	0	6.0	42.7	4.0	146.3	...
28	8/14	1432	46°37'24"	86°23'30"	17.6	15.5	17.7	7.0	38.1	4.2	140.2	...
29	8/14	1642	46°32'38"	86°37'00"	16.8	14.8	23.5	10.1	29.6	5.7	61.0	...
30	8/15	0903	46°33'45"	86°37'45"	17.5	15.9	21.6	7.4	34.7	6.3	45.7	...
31	8/15	1018	46°35'45"	86°43'50"	17.4	15.8	15.2	6.8	36.6	4.2	195.1	...
32	8/15	1055	46°38'10"	86°50'30"	17.0	15.5	10.7	5.5	35.4	4.2	114.3	...
33	8/15	1125	46°40'05"	86°56'25"	17.5	15.0	12.2	5.0	36.0	4.0	170.7	7
34	8/15	1306	46°34'35"	86°58'40"	17.4	15.4	14.0	11.0	22.3	6.5	42.1	8
35	8/15	1456	46°33'45"	87°08'15"	17.3	14.7	14.3	9.9	23.1	6.8	36.9	...
36	8/15	1530	46°33'40"	87°15'20"	17.4	17.4	0	6.3	40.8	5.4	61.0	...

Table 6. --Observations at bathythermograph casts, cruise VI, 1952 (Cisco) (cont'd)

Bathythermograph number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Station number
					Surface (°C.)	Metalimnion				Deepest reading		
						Upper limits		Lower limits				
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	
37	8/16	0914	46°38'45"	87°23'50"	16.4	16.0	16.2	11.2	23.5	8.5	36.6	...
38	8/16	0921	46°39'35"	87°24'45"	16.5	15.6	16.8	12.6	19.5	8.5	43.0	...
39	8/16	0952	46°43'20"	87°28'00"	16.2	15.9	16.5	7.6	38.1	5.3	61.0	...
40	8/16	1029	46°47'50"	87°32'20"	16.5	14.6	23.2	6.2	33.8	5.0	61.0	...
41	8/16	1109	46°52'05"	87°36'55"	16.6	13.6	21.0	7.5	29.0	4.6	56.4	...
42	8/16	1137	46°54'45"	87°42'30"	16.6	16.0	12.2	7.5	36.6	4.8	74.7	...
43	8/16	1216	46°58'00"	87°49'35"	16.9	16.4	9.1	10.4	16.5	5.3	50.9	...
44	8/16	1248	47°00'40"	87°55'30"	15.5	15.5	0	6.7	39.6	4.3	97.5	...
45	8/16	1325	47°02'35"	88°03'00"	16.1	12.1	28.7	7.0	33.7	4.6	61.0	...
46	8/16	1345	47°03'00"	88°04'55"	...	...	...	...	...	...	...	...
47	8/16	1345	47°03'00"	88°04'55"	16.7	16.6	12.8	5.6	45.7	4.2	158.5	9
48	8/16	1626	47°04'45"	88°18'05"	17.0	12.1	32.6	7.6	40.8	6.2	48.8	...
49	8/17	0922	47°16'45"	88°37'45"	16.6	16.6	11.3	6.1	28.0	4.7	48.2	...
50	8/17	0948	47°19'50"	88°42'10"	15.8	15.8	8.2	7.5	28.3	4.2	61.0	...
51	8/17	0952	47°21'30"	88°43'50"	15.8	15.8	8.5	7.4	29.0	4.0	121.9	...
52	8/17	1040	47°26'30"	88°49'00"	13.3	13.1	6.7	5.0	30.5	4.0	187.5	11
53	8/17	1040	47°26'30"	88°49'00"	...	...	...	...	...	...	...	11
54	8/17	1218	47°34'00"	88°53'30"	14.0	12.6	10.7	8.4	19.8	4.1	61.0	...
55	8/17	1223	47°39'30"	89°01'15"	14.0	13.3	6.7	5.1	36.0	4.0	201.2	...
56	8/17	1405	47°41'00"	89°03'45"	14.2	12.6	12.8	5.2	27.4	4.1	61.0	...
57	8/17	1410	47°42'00"	89°04'05"	13.9	13.5	6.7	4.6	36.6	4.0	176.8	...
58	8/17	1446	47°45'45"	89°06'00"	13.8	13.2	6.7	4.8	35.0	4.0	195.1	13
59	8/17	1446	47°45'45"	89°06'00"	...	...	...	...	...	...	...	13
60	8/18	0801	47°53'35"	89°12'30"	14.3	12.1	10.7	6.9	21.6	5.7	29.6	...
61	8/18	0821	47°52'50"	89°16'00"	13.3	13.3	0	5.2	43.6	4.6	59.7	...
62	8/18	0828	47°53'45"	89°17'15"	13.2	12.4	10.7	5.0	30.5	4.2	93.0	...
63	8/18	0850	47°55'30"	89°20'20"	...	...	...	...	...	...	...	15
64	8/18	0850	47°55'30"	89°20'20"	13.0	13.0	0	4.6	38.1	3.7	216.4	15
65	8/18	0951	47°56'30"	89°22'10"	13.0	13.0	0	4.6	36.6	4.0	189.0	...
66	8/18	1010	47°57'50"	89°25'15"	11.5	10.9	4.3	6.3	11.6	4.3	61.0	...
67	8/18	1041	47°55'40"	89°34'00"	12.5	12.5	0	5.1	24.4	3.8	228.6	...
68	8/18	1116	47°50'00"	89°34'50"	13.8	13.2	6.1	5.5	27.4	3.9	182.9	...
69	8/18	1122	47°49'00"	89°34'55"	13.8	13.4	4.6	6.5	17.4	4.1	50.9	...
70	8/18	1152	47°44'50"	89°35'30"	14.1	13.1	7.3	7.0	21.3	4.1	61.0	...
71	8/18	1201	47°42'55"	89°35'40"	14.0	13.3	6.1	5.5	27.4	3.9	170.7	...
72	8/18	1250	47°35'30"	89°37'00"	...	...	...	...	...	...	...	16
73	8/18	1250	47°35'30"	89°37'00"	15.0	14.4	7.6	5.4	32.0	4.0	173.7	16
74	8/18	1413	47°27'50"	89°38'30"	14.0	14.0	0	4.5	36.6	3.9	207.3	...

Table 6.--Observations at bathythermograph casts, cruise VI, 1952 (Cisco) (cont'd)

Bathythermograph number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Station number
					Surface (°C.)	Metalimnion				Deepest reading		
						Upper limits		Lower limits				
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	
75	8/18	1452	47°22'35"	89°39'00"	14.3	14.3	0	5.0	30.5	3.9	170.7	...
76	8/18	1521	47°18'20"	89°40'00"	14.7	14.7	0	5.1	32.0	4.0	195.1	...
77	8/18	1557	47°13'10"	89°40'50"	...	...	...	...	...	...	...	17
78	8/18	1557	47°13'10"	89°40'10"	14.9	14.3	6.1	4.2	30.5	3.8	176.8	17
79	8/18	1720	47°06'50"	89°13'30"	16.5	16.5	0	5.0	36.6	4.0	128.0	...
80	8/18	1754	47°01'00"	89°19'50"	16.5	14.8	12.2	5.4	36.6	4.4	88.4	...
81	8/18	1816	46°58'10"	89°20'00"	17.6	16.2	6.4	4.5	39.6	4.1	61.0	...
82	8/18	1838	46°55'10"	89°20'10"	17.0	15.2	14.6	5.0	29.6	5.0	29.6	...
83	8/19	0847	46°55'30"	89°27'45"	16.4	13.6	16.8	5.1	36.3	5.1	36.3	...
84	8/19	0908	46°56'50"	89°31'00"	17.4	14.6	13.4	5.9	27.4	3.9	57.9	...
85	8/19	0942	46°59'15"	89°37'00"	15.9	15.7	2.7	10.2	8.2	4.0	61.0	...
86	8/19	0946	46°59'35"	89°37'30"	16.4	16.1	4.6	7.4	18.3	4.0	128.0	...
87	8/19	1027	47°01'15"	89°44'30"	...	...	...	...	...	...	...	18
88	8/19	1027	47°01'15"	89°44'30"	13.7	13.7	0	4.6	39.6	3.9	201.2	18
89	8/19	1212	47°07'05"	89°47'15"	15.0	15.0	0	4.8	33.8	3.9	61.0	...
90	8/19	1249	47°12'10"	89°49'40"	...	...	...	...	...	...	...	...
91	8/19	1254	47°13'00"	89°50'00"	15.7	15.7	0	7.6	15.2	4.1	61.0	...
92	8/19	1300	47°14'00"	89°50'30"	15.5	15.5	0	7.7	14.0	4.2	61.0	...
93	8/19	1305	47°14'50"	89°50'45"	15.6	15.6	0	8.1	13.4	4.1	C1.0	...
94	8/19	1315	47°16'05"	89°51'15"	...	...	...	...	...	...	...	...
95	8/19	1317	47°17'50"	89°51'45"	...	...	...	...	...	...	...	19
96	8/19	1317	47°17'50"	89°51'45"	15.8	13.5	9.1	7.0	18.9	4.1	61.0	19
97	8/19	1500	47°25'30"	89°56'30"	15.3	13.1	8.5	9.0	14.3	4.1	61.0	...
98	8/19	1533	47°30'40"	89°59'00"	16.7	16.7	0	8.1	14.0	4.1	61.0	...
99	8/19	1538	47°31'20"	89°59'30"	16.1	16.1	0	8.5	12.2	3.8	140.2	...
100	8/19	1615	47°36'40"	90°02'00"	16.6	16.6	0	8.1	11.0	4.0	61.0	...
101	8/19	1640	47°41'20"	90°04'30"	...	...	...	...	...	...	...	20
102	8/19	1645	47°41'20"	90°04'30"	16.5	16.5	0	4.7	27.4	3.9	179.8	20
103	8/19	1749	47°42'30"	90°10'50"	17.0	17.0	0	7.5	12.5	4.0	61.0	...
104	8/19	1819	47°43'50"	90°16'30"	15.5	15.5	0	7.6	7.9	4.1	61.0	...
105	8/20	0749	47°41'15"	90°21'30"	15.2	15.2	0	6.1	12.2	4.2	61.0	...
106	8/20	0757	47°40'30"	90°22'00"	14.9	14.9	0	5.0	22.9	4.0	115.8	...
107	8/20	0832	47°35'30"	90°24'00"	14.5	14.2	2.7	5.0	24.7	4.2	51.8	...
108	8/20	0900	47°31'50"	90°25'20"	14.4	14.2	3.0	5.1	25.0	4.1	61.0	...
109	8/20	0912	47°30'10"	90°26'00"	...	...	...	...	...	...	...	21
110	8/20	0920	47°30'10"	90°26'00"	13.6	13.6	0	5.0	32.0	4.0	179.8	21
111	8/20	1051	47°24'45"	90°27'15"	14.1	14.0	3.0	4.9	19.8	4.0	61.0	...
112	8/20	1122	47°21'00"	90°29'00"	14.8	14.6	3.0	5.0	25.3	4.1	61.0	...
113	8/20	1155	47°15'50"	90°29'30"	16.1	15.0	8.2	4.6	27.1	3.9	61.0	...
114	8/20	1225	47°11'50"	90°29'50"	16.5	14.7	10.7	4.9	29.0	4.0	61.0	...
115	8/20	1241	47°09'15"	90°30'00"	16.4	15.2	7.6	4.5	42.7	4.2	57.9	22

Table 6.--Observations at bathythermograph casts, cruise VI, 1952 (Cisco) (cont'd)

Bathythermograph number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Station number
					Surface (°C.)	Metalimnion				Deepest reading		
						Upper limits		Lower limits				
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	
116	8/20	1357	47°04'10"	90°30'30"	18.4	13.5	14.6	8.8	19.8	4.2	50.9	...
117	8/20	1426	46°58'30"	90°28'50"	18.7	18.7	0	5.6	32.0	4.3	61.0	...
118	8/20	1429	46°58'00"	90°28'15"	16.1	12.7	19.5	5.1	31.1	4.7	41.1	...
119	8/20	1508	46°56'20"	90°27'30"	17.9	16.2	7.3	7.5	20.1	4.4	61.0	...
120	8/20	1547	46°52'00"	90°34'30"	...	...	...	...	...	...	...	23
121	8/20	1617	46°52'00"	90°34'30"	19.1	19.1	0	6.9	22.9	4.4	39.9	23
122	8/20	1741	46°50'50"	90°42'00"	18.5	14.6	11.0	9.9	15.2	5.3	38.1	...
123	8/20	1745	46°50'25"	90°42'30"	18.4	14.2	11.6	6.5	22.9	4.8	55.5	...
124	8/21	1349	46°49'00"	90°48'45"	18.5	17.9	8.2	5.5	26.8	5.3	33.5	24
125	8/22	0603	46°55'55"	90°40'30"	16.6	16.4	11.0	8.1	22.9	4.5	61.0	26
126	8/22	0717	46°53'35"	90°32'20"	16.4	16.1	8.8	10.7	15.5	4.8	58.5	...
127	8/22	0750	46°56'50"	90°27'10"	16.0	15.9	7.9	8.5	19.8	4.5	61.0	...
128	8/22	0845	47°01'50"	90°17'00"	15.8	15.7	11.6	6.3	31.0	4.6	61.0	...
129	8/22	0923	47°05'10"	90°10'15"	15.6	15.2	12.2	6.1	25.9	3.9	61.0	...
130	8/22	0944	47°06'40"	90°07'00"	...	...	...	...	...	...	...	27
131	8/22	0944	47°06'40"	90°07'00"	15.6	15.5	9.1	5.0	30.4	3.9	146.3	27
132	8/22	1050	47°09'50"	90°00'50"	15.0	14.1	8.5	7.1	18.3	4.0	121.9	...
133	8/22	1053	47°10'00"	90°00'25"	14.5	13.4	11.0	6.6	19.2	4.3	56.7	...
134	8/22	1158	47°15'30"	89°49'30"	15.3	14.1	9.1	8.1	18.9	4.2	61.0	...
135	8/22	1202	47°16'00"	89°49'00"	15.0	14.3	10.7	5.5	33.5	4.0	195.1	...
136	8/22	1236	47°19'00"	89°42'40"	15.2	13.9	8.5	5.2	26.5	4.2	61.0	...
137	8/22	1309	47°22'10"	89°36'10"	16.0	13.5	9.8	5.0	28.7	4.1	61.0	...
138	8/22	1336	47°24'35"	89°31'30"	...	...	...	...	...	...	...	28
139	8/22	1336	47°24'35"	89°31'30"	15.0	13.5	10.7	6.4	24.4	4.0	204.2	28
140	8/22	1447	47°27'10"	89°25'50"	15.5	12.5	12.2	6.0	23.8	4.0	54.9	...
141	8/22	1524	47°31'20"	89°19'10"	16.5	14.0	12.2	6.0	23.2	4.1	61.0	...
142	8/22	1606	47°35'50"	89°13'00"	16.4	14.4	10.1	6.3	22.9	4.1	61.0	...
143	8/22	1716	47°46'25"	88°58'30"	14.7	13.4	11.3	6.9	22.9	4.2	61.0	...
144	8/22	1724	47°46'45"	88°57'20"	14.8	13.3	10.7	6.0	24.4	4.0	152.4	...
145	8/22	1802	47°51'30"	88°51'10"	14.9	14.3	12.2	7.6	18.9	4.1	61.0	...
146	8/22	1841	47°55'40"	88°45'00"	14.5	12.5	20.7	8.0	24.7	5.4	61.0	...
147	8/22	1916	47°59'00"	88°40'10"	14.6	13.5	18.0	7.8	31.1	4.4	61.0	...
148	8/22	1921	47°59'20"	88°39'30"	14.8	13.9	16.8	8.3	29.9	4.5	61.0	...
149	8/23	0834	48°02'00"	88°31'30"	...	...	...	...	...	...	...	29
150	8/23	0834	48°02'00"	88°31'30"	14.5	14.1	13.7	6.0	48.8	4.1	207.3	29
151	8/23	0950	47°58'40"	88°27'50"	13.8	13.0	15.8	7.4	26.8	4.4	61.0	...
152	8/23	1025	47°54'20"	88°23'30"	13.7	12.8	13.1	6.9	17.4	4.1	61.0	...
153	8/23	1055	47°50'30"	88°18'40"	...	...	...	...	...	...	...	30
154	8/23	1055	47°50'30"	88°18'40"	14.8	14.7	13.7	7.7	22.9	4.0	272.8	30
155	8/23	1214	47°44'40"	88°12'50"	14.2	14.0	7.6	6.7	20.1	4.1	61.0	...
156	8/23	1312	47°37'50"	88°05'00"	13.4	11.6	14.3	6.8	22.9	4.5	61.0	...
157	8/23	1358	47°31'40"	87°58'50"	...	...	...	...	...	...	...	31

Table 6.--Observations at bathythermograph casts, cruise VI, 1952 (Cisco) (cont'd)

Bathythermograph number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Station number
					Surface (°C.)	Metalimnion				Deepest reading		
						Upper limits		Lower limits				
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	
158	8/23	1358	47°31'40"	87°58'50"	15.2	15.1	15.2	5.4	50.3	4.0	196.6	31
159	8/24	0857	47°29'30"	87°47'30"	15.7	15.5	6.4	5.8	33.5	4.3	61.0	32
160	8/24	1006	47°26'30"	87°42'25"	16.2	16.1	4.3	8.0	25.9	4.6	61.0	...
161	8/24	1033	47°23'25"	87°42'20"	15.5	12.6	17.4	6.9	23.2	4.5	45.7	...
162	8/24	1117	47°19'15"	87°49'55"	15.6	15.6	7.6	4.8	57.6	4.8	57.6	...
163	8/24	1230	47°10'00"	88°02'25"	15.6	15.5	11.3	12.4	12.8	4.7	61.0	...
164	8/24	1312	47°10'15"	88°09'55"	16.6	16.2	7.0	6.2	40.2	4.1	61.0	...
165	8/24	1336	47°10'15"	88°09'55"	...	...	...	...	...	...	...	...
166	8/24	1513	47°10'15"	88°09'55"	16.1	16.0	4.0	10.5	22.9	10.5	22.9	...
167	8/24	1624	47°05'40"	88°16'15"	17.4	16.6	8.2	6.9	32.0	5.3	52.4	...
168	8/24	1646	47°03'55"	88°19'00"	...	...	...	...	...	...	...	...
169	8/25	1120	47°03'00"	88°20'15"	16.5	...	...	...	...	10.4	21.3	...
170	8/25	1332	46°55'50"	88°21'10"	19.0	...	...	...	...	7.3	30.5	...
171	8/25	1345	46°53'50"	88°21'20"	19.5	16.6	11.6	11.4	19.8	6.7	38.1	...
172	8/25	1347	46°53'40"	88°21'22"	19.7	17.0	12.2	11.9	18.3	5.3	58.8	...
173	8/25	1646	46°52'55"	88°21'25"	...	...	...	...	...	...	...	34
174	8/25	1720	46°52'55"	88°21'25"	19.4	17.8	7.6	13.1	12.8	6.8	37.5	34
175	8/26	1102	46°57'05"	87°55'45"	17.5	16.4	14.6	12.0	19.0	5.0	61.0	...
176	8/26	1202	46°54'55"	87°49'55"	18.4	17.0	15.2	14.0	16.8	8.7	32.3	35
177	8/26	1521	46°42'40"	87°16'30"	18.4	15.5	16.8	6.9	22.9	3.9	61.0	...
178	8/26	1557	46°40'00"	87°09'40"	18.4	15.7	15.8	7.5	19.8	4.0	59.1	...
179	8/26	1625	46°37'50"	87°04'40"	18.2	16.0	15.2	7.9	21.9	3.9	57.9	...
180	8/26	1738	46°33'15"	86°50'15"	...	...	...	...	...	...	...	...
181	8/27	0922	46°31'50"	86°51'15"	17.8	16.4	20.4	7.3	33.5	4.9	48.8	...
182	8/27	1005	46°31'45"	86°53'25"	17.8	17.6	5.2	7.7	35.7	7.7	35.7	8
183	8/28	0731	46°33'10"	86°30'15"	18.0	17.7	19.5	8.7	24.4	5.1	61.0	...
184	8/28	0758	46°36'25"	86°23'45"	17.8	15.6	23.1	8.1	29.6	4.2	57.0	...
185	8/28	0847	46°40'25"	86°14'20"	17.9	17.6	13.4	14.2	21.0	14.2	21.0	...
186	8/28	0937	46°43'10"	85°59'05"	17.9	17.8	18.3	16.5	21.0	16.5	21.0	...
187	8/28	1059	46°44'35"	85°45'10"	17.6	17.6	16.8	15.0	18.9	10.2	35.1	...
188	8/28	1114	46°44'50"	85°41'40"	17.9	17.8	17.1	7.2	41.1	5.7	51.8	...
189	8/28	1145	46°45'35"	85°34'45"	17.9	16.8	15.8	8.9	30.5	4.4	61.0	...
190	8/28	1212	46°46'10"	85°28'05"	17.6	15.0	21.3	8.7	32.6	6.0	45.7	...
191	8/28	1242	46°46'45"	85°21'15"	17.6	17.6	9.1	12.7	27.4	12.7	27.4	...
192	8/28	1316	46°47'30"	85°13'50"	18.0	...	...	...	...	17.5	16.8	...
193	8/28	1342	46°48'00"	85°07'40"	18.2	...	...	...	...	17.1	15.8	...
194	8/28	1415	46°47'30"	85°00'20"	18.4	18.0	9.1	16.6	13.7	16.6	13.7	...
195	8/28	1427	46°47'10"	84°57'45"	18.3	18.2	15.2	8.1	45.7	8.1	45.7	...
196	8/28	1456	46°44'10"	84°53'40"	18.2	15.6	29.0	8.7	41.1	5.8	60.0	...
197	8/28	1526	46°40'40"	84°49'30"	18.4	18.2	9.1	6.2	51.8	6.2	51.8	...
198	8/28	1554	46°37'30"	84°45'45"	17.6	16.1	19.5	6.2	61.0	6.2	61.0	...
199	8/28	1633	46°32'40"	84°40'15"	18.2	17.5	15.8	9.7	29.6	9.7	29.6	...

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples]

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion: Upper limits: Temperature (°C.)	Metalimnion: Upper limits: Depth (meters)	Metalimnion: Lower limits: Temperature (°C.)	Metalimnion: Lower limits: Depth (meters)	Deepest reading: Temperature (°C.)	Deepest reading: Depth (meters)						
Cruise I																	
1	5/5	1443	46°31'25"	86°56'10"	2.5	...	...	...	...	2.7	33.5			(Station 1)			
2	5/5	1557	46°32'40"	87°07'40"	2.8	...	...	...	...	2.8	32.0	...	...	...	...	...	...
3	5/5	1629	47°32'00"	87°14'45"	2.1	...	...	...	...	2.5	41.1	...	...	...	...	...	...
4	5/6	0926	46°36'10"	87°21'15"	2.0	...	...	...	...	2.1	67.1	...	...	...	...	...	...
5	5/6	1010	46°41'55"	87°26'25"	2.1	...	...	...	...	2.3	44.2	...	...	...	...	...	...
6	5/6	1041	46°44'45"	87°28'45"	2.0	...	...	...	...	2.5	45.7	...	...	...	...	...	...
7	5/6	1121	46°50'10"	87°33'25"	2.0	...	...	...	...	2.0	61.0	...	...	...	...	...	...
8	5/6	1147	46°54'20"	87°37'00"	1.7	...	...	...	...	1.7	65.5			(Station 2)			
9	5/6	1147	46°54'20"	87°37'00"	...	...	...	...	...	...	...			(Station 2)			
10	5/6	1328	46°58'20"	87°52'15"	2.7	...	...	...	...	2.9	44.2	...	...	...	...	...	...
11	5/6	1401	46°59'30"	87°59'05"	1.8	...	...	...	...	1.9	64.0	...	...	...	...	...	...
12	5/6	1519	47°02'15"	88°11'00"	1.9	...	...	...	...	2.1	41.1			(Station 3)			
13	5/6	1627	47°03'00"	88°20'45"	2.9	...	...	...	...	3.9	22.9			(Station 4)			
14	5/7	0909	47°03'00"	88°20'45"	3.1	...	...	...	...	3.5	21.3			(Station 4)			
15	5/7	1104	47°02'15"	88°11'00"	1.8	...	...	...	...	2.0	67.1			(Station 3)			
16	5/7	1318	47°05'30"	88°09'50"	1.8	...	...	...	...	1.9	67.1			(Station 5)			
17	5/7	1356	47°05'25"	88°06'20"	2.0	...	...	...	...	2.0	62.5			(Station 5)			
18	5/7	1723	47°00'40"	88°16'25"	2.4	...	...	...	...	2.4	48.8	...	...	...	...	...	...
19	5/8	0851	47°00'40"	88°16'25"	2.3	...	...	...	...	2.3	61.0	...	...	...	...	...	...
20	5/8	0958	47°02'15"	88°11'00"	2.0	...	...	...	...	2.0	30.5			(Station 3)			
21	5/8	1138	47°05'30"	88°09'50"	...	...	...	...	...	...	...	...	...	...	...	...	...
22	5/8	1138	47°05'30"	88°09'50"	2.1	...	...	...	...	1.9	97.5	...	...	...	...	...	...
23	5/8	1330	47°02'15"	88°11'00"	1.9	...	...	...	...	1.9	67.1			(Station 3)			

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18}x10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
24	5/8	1535	47°00'25"	88°09'35"	2.5	...	...	...	...	2.4	137.1	...	...	...	...	...	...
25	5/9	0950	47°02'15"	88°11'00"	1.8	...	...	...	...	1.9	65.5	...	...	...	...	...	...
26	5/9	1050	47°00'25"	88°09'35"	2.2	...	...	...	...	2.4	105.1			(Station 7)			
27	5/10	0905	47°00'35"	88°15'05"	2.1	...	...	...	...	2.1	67.1			(Station 8)			
28	5/10	1540	46°49'15"	88°26'25"	3.0	...	...	...	...	3.6	91.4	...	...	...	...	...	...
29	5/11	0810	46°48'21"	88°26'55"	3.2	...	...	...	...	3.3	67.1			(Station 9)			
30	5/13	0854	46°51'00"	88°25'15"	3.4	...	...	...	...	3.9	91.4	...	...	...	...	...	...
31	5/13	0930	46°54'23"	88°20'35"	3.1	...	...	...	...	3.6	128.0	...	...	...	...	...	...
32	5/13	1000	46°57'10"	88°15'10"	3.2	...	...	...	...	3.2	140.2	...	...	...	...	...	...
33	5/13	1032	46°59'00"	88°08'45"	2.7	...	...	...	...	2.8	35.1	...	...	...	...	...	...
34	5/13	1101	46°59'45"	88°02'30"	2.5	...	...	...	...	2.8	47.2	...	...	...	...	...	...
35	5/13	1129	46°58'35"	87°56'35"	2.5	...	...	...	...	2.6	61.0	...	...	...	...	...	...
36	5/13	1231	46°55'15"	87°44'10"	3.1	...	...	...	...	3.2	48.8	...	...	...	...	...	...
37	5/13	1303	46°53'25"	87°37'30"	2.3	...	...	...	...	2.3	59.4	...	...	...	...	...	...
38	5/13	1334	46°49'10"	87°34'00"	2.3	...	...	...	...	2.4	33.5	...	...	...	...	...	...
39	5/13	1408	46°44'50"	87°29'35"	2.2	...	...	...	...	2.2	35.1	...	...	...	...	...	...
40	5/13	1432	46°41'55"	87°26'30"	2.3	...	...	...	...	2.4	51.8	...	...	...	...	...	...
41	5/13	1503	46°37'50"	87°23'10"	0.7	...	...	...	...	0.7	59.4	...	...	...	...	...	...
Cruise II																	
1	5/22	1008	46°38'45"	87°23'10"	3.0	...	...	...	...	3.2	53.3	...	...	...	...	...	...
2	5/22	1041	46°43'00"	87°27'00"	2.9	...	...	...	...	3.9	50.3	...	...	...	...	...	...
3	5/22	1108	46°46'45"	87°30'00"	2.9	...	...	...	...	3.1	39.6	...	...	...	49.0	...	...

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
4	5/22	1139	46°50'30"	87°32'30"	2.8	...	...	...	...	2.9	64.0	...	...	...	47.0	...	...
5	5/22	1209	46°54'20"	87°35'00"	...	...	...	...	...	...	...			(Station 2)			
6	5/22	1209	46°54'20"	87°35'00"	2.7	...	...	...	...	3.5	85.3			(Station 2)			
7	5/22	1315	46°55'50"	87°43'00"	2.6	...	...	...	...	2.6	59.4	...	...	...	45.0	...	...
8	5/22	1347	46°57'40"	87°49'40"	2.8	...	...	...	...	2.9	37.8	...	...	...	47.0	...	...
9	5/22	1417	46°59'00"	87°56'30"	2.9	...	...	...	...	2.9	67.1	...	...	...	46.0	...	...
10	5/22	1450	47°00'00"	88°03'30"	3.3	...	...	...	...	3.3	43.0	...	...	...	49.0	...	...
11	5/22	1520	46°59'30"	88°09'50"	3.9	...	...	...	...	3.9	23.2	...	...	...	47.0	...	...
12	5/22	1538	46°59'25"	88°13'30"	3.6	...	...	...	...	3.1	152.4	...	...	...	49.0	...	...
13	5/22	1609	46°58'45"	88°20'50"	4.3	...	...	...	...	4.3	29.9	...	...	...	46.5	...	...
14	5/22	1630	46°58'00"	88°24'40"	4.4	...	...	...	...	4.2	33.2	...	...	...	46.0	...	...
15	5/23	0943	47°18'00"	88°41'15"	2.9	...	...	...	...	2.9	67.1	...	...	...	44.5	...	...
16	5/23	1011	47°21'10"	88°44'30"	2.7	...	...	...	...	2.5	152.4			(Station 11)			
17	5/23	1131	47°27'20"	88°50'50"	2.8	...	...	...	...	2.2	201.2	...	...	...	44.7	...	...
18	5/23	1212	47°32'45"	88°56'15"	3.0	...	...	...	...	2.6	121.9	...	...	...	46.0	...	...
19	5/23	1235	47°35'30"	88°59'20"	2.6	...	...	...	...	2.3	201.2			(Station 12)			
20	5/23	1338	47°39'15"	89°03'20"	2.6	...	...	...	...	2.1	198.1	...	...	...	47.0	...	...
21	5/23	1408	47°42'50"	89°07'00"	2.8	...	...	...	...	2.2	189.0	...	...	...	43.0	...	...
22	5/23	1438	47°46'30"	89°10'30"	2.7	...	...	...	...	2.3	140.2	...	...	...	44.1	...	...
23	5/23	1451	47°48'10"	89°13'00"	2.9	...	...	...	...	2.9	67.1			(Station 13)			
24	5/24	0935	47°48'10"	89°13'00"	2.8	...	...	...	...	3.0	67.1			(Station 13)			
25	5/24	1105	47°47'25"	89°15'45"	2.8	...	...	...	...	2.5	109.7	...	...	...	47.0	...	...
26	5/24	1147	47°46'20"	89°25'10"	2.7	...	...	...	...	2.5	109.7	...	...	...	44.0	...	...

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18}x10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
27	5/24	1219	47°45'20"	89°31'50"	2.7	...	...	...	...	2.2	176.8	...	...	...	43.0	...	...
28	5/24	1248	47°44'50"	89°38'50"	2.5	...	...	...	...	2.2	170.7			(Station 14)			
29	5/24	1411	47°43'20"	89°49'10"	2.6	...	...	...	...	2.1	189.0	...	...	...	44.5	...	...
30	5/24	1441	47°42'30"	89°55'40"	2.7	...	...	...	...	2.2	164.6	...	...	...	45.5	...	...
31	5/24	1516	47°41'10"	90°03'15"	2.6	...	...	...	...	2.2	134.1			(Station 15)			
32	5/24	1615	47°42'25"	90°09'25"	2.8	...	...	...	...	2.3	164.6	...	...	...	45.0	...	...
33	5/24	1658	47°44'30"	90°18'35"	2.7	...	...	...	...	2.6	121.9			(Station 16)			
34	5/26	0759	47°43'40"	90°22'35"	2.8	...	...	...	...	2.5	129.5	...	...	...	43.5	...	...
35	5/26	0827	47°41'05"	90°27'25"	2.9	...	...	...	...	2.4	149.4	...	...	...	44.0	...	...
36	5/26	0905	47°37'35"	90°34'00"	3.0	...	...	...	...	2.7	160.0	...	...	...	44.0	...	...
37	5/26	1117	47°27'15"	90°57'30"	3.0	...	...	...	...	2.4	201.1	13.4	0.95	...	43.0	13	...
38	5/26	1200	47°23'15"	91°04'50"	3.0	...	...	...	...	3.0	158.5	...	...	...	43.0	...	...
39	5/26	1232	47°19'25"	91°09'45"	3.0	...	...	...	...	2.7	182.9	...	...	...	45.0	...	...
40	5/26	1303	47°15'30"	91°14'30"	3.0	...	...	...	...	2.4	207.3	...	...	...	45.0	...	...
41	5/26	1333	47°12'10"	91°19'15"	2.7	...	...	...	...	2.3	164.6	...	...	...	44.0	...	...
42	5/26	1405	47°08'50"	91°24'10"	3.0	...	...	...	...	2.5	161.5	...	...	...	44.0	...	...
43	5/26	1435	47°05'55"	91°29'00"	3.0	...	...	...	...	2.6	106.7	...	...	...	45.0	...	...
44	5/26	1505	47°02'45"	91°34'15"	2.9	...	...	...	...	2.6	121.9	...	...	...	45.0	...	...
45	5/26	1534	46°59'45"	91°39'15"	2.7	...	...	...	...	2.9	67.1			(Station 17)			
46	5/27	0820	46°59'45"	91°39'05"	2.8	...	...	...	...	3.0	67.1			(Station 17)			
47	5/27	0950	46°58'15"	91°39'05"	2.7	...	...	...	...	2.5	140.2	...	...	...	43.5	...	...
48	5/27	1010	46°58'15"	91°39'05"	2.7	...	...	...	...	2.7	67.1			(Station 18)			
49	5/27	1222	46°52'15"	91°30'00"	3.1	...	...	...	...	3.6	67.1			(Station 19)			
50	5/27	1340	46°52'45"	91°27'35"	3.7	...	...	...	...	3.7	61.0	...	...	...	44.0	...	...

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
51	5/27	1410	46°50'45"	91°27'15"	3.5	...	...	...	...	3.8	59.7	...	...	...	43.0	...	...
52	5/27	1439	46°50'05"	91°24'00"	3.9	...	...	...	...	3.9	48.8	...	...	...	43.0	...	...
53	5/28	0821	46°50'05"	91°21'20"	4.0	...	...	...	...	3.9	35.1	...	...	...	45.0	...	...
54	5/28	0851	46°52'50"	91°15'25"	3.8	...	...	...	...	3.9	49.4	12.4	...	...	...	12	78.7
55	5/28	0922	46°55'25"	91°09'45"	3.2	...	...	...	...	3.4	67.1	13.0	...	...	...	16	78.7
56	5/28	0951	46°57'30"	91°05'00"	2.9	...	...	...	...	2.9	63.7	12.3	...	...	...	...	78.7
57	5/28	1022	47°00'10"	90°59'15"	4.4	...	...	...	...	4.1	43.3	12.2	...	...	...	9	78.7
58	5/28	1051	47°01'30"	90°54'10"	6.8	...	...	...	...	4.9	22.6	12.3	...	...	...	51	78.3
59	5/28	1122	47°00'30"	90°47'50"	6.4	...	...	...	...	5.3	30.8			(Station 20)			
60	5/28	1512	46°56'35"	90°46'15"	7.9	...	...	...	...	5.9	30.5	11.7	...	...	...	16	78.0
61	5/28	1543	46°52'15"	90°45'10"	7.4	...	...	...	...	5.9	29.6	...	...	...	...	...	...
62	5/29	1332	46°49'20"	90°47'25"	7.8	...	...	...	...	6.8	13.7			(Station 21)			
63	5/29	1340	46°49'20"	90°47'25"	...	...	...	...	...	...	...			(Station 21)			
64	5/29	1457	46°41'45"	90°50'15"	10.0	9.9	3.0	7.6	6.1	6.3	21.0			(Station 22)			
65	5/29	1632	46°46'50"	90°49'15"	8.0	7.7	10.7	6.8	15.2	5.6	37.2			(Station 23)			
66	5/30	0853	46°49'20"	90°47'25"	7.8	...	...	...	...	6.9	22.9			(Station 21)			
67	5/30	0923	46°51'50"	90°41'50"	6.0	6.0	18.3	4.4	32.0	4.4	38.1	12.2	...	...	...	13	78.7
68	5/30	1002	46°54'15"	90°35'30"	4.7	...	...	...	...	4.2	67.1			(Station 24)			
69	5/30	1153	46°54'10"	90°44'45"	6.0	...	...	...	...	5.5	25.6			(Station 25)			
70	5/30	1347	46°51'00"	90°45'15"	7.0	...	...	...	...	5.1	27.7	...	...	...	...	...	...
71	5/30	1510	46°49'20"	90°47'25"	7.1	...	...	...	...	5.8	35.4			(Station 21)			
72	5/31	0911	46°44'45"	90°40'50"	6.6	...	...	...	...	5.8	33.8	12.7	...	...	...	16	78.0
73	5/31	0941	46°45'30"	90°33'50"	4.4	...	...	...	...	4.4	44.5	12.0	...	...	...	16	78.7

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
74	5/31	1011	46°46'20"	90°28'15"	3.7	...	...	...	...	3.7	36.6	11.8	...	...	...	13	78.7
75	5/31	1044	46°47'30"	90°20'45"	3.3	...	...	...	...	3.4	65.8	12.7	...	...	...	10	78.3
76	5/31	1111	46°48'10"	90°14'40"	3.1	...	...	...	...	3.1	64.6	12.2	...	...	...	11	78.7
77	5/31	1143	46°49'05"	90°08'10"	2.9	...	...	...	...	2.9	62.8	13.4	...	...	...	15	78.7
78	5/31	1212	46°49'50"	90°01'25"	2.9	...	...	...	...	2.9	66.7	12.3	...	...	...	12	78.7
79	5/31	1248	46°50'50"	89°54'10"	4.8	...	...	...	...	4.4	65.6	12.8	...	...	...	19	78.7
80	5/31	1336	46°52'15"	89°53'15"	2.9	...	...	...	...	3.8	60.7	12.7	...	...	...	16	78.7
81	5/31	1409	46°53'10"	89°35'10"	3.9	...	...	...	...	3.7	64.0	12.3	...	...	...	12	78.0
82	5/31	1437	46°54'00"	89°29'15"	3.4	...	...	...	...	3.5	62.8	12.4	...	...	...	19	78.7
83	5/31	1509	46°54'50"	89°22'30"	5.8	...	...	...	...	4.8	31.4	12.5	...	...	...	20	...
84	6/1	1005	46°54'20"	89°21'45"	6.1	5.8	21.3	4.6	25.9	4.4	36.6			(Station 27)			
85	6/1	1056	46°59'15"	89°12'25"	5.5	...	...	...	...	4.8	39.3	12.2	...	...	44.0	16	76.0
86	6/1	1137	47°02'50"	89°05'15"	5.9	...	...	...	...	4.3	55.2	...	...	...	43.5	13	...
87	6/1	1207	47°05'45"	88°59'30"	5.3	...	...	...	...	5.0	50.3			(Station 28)			
88	6/1	1308	47°08'40"	88°53'45"	5.3	...	...	...	...	5.0	34.7	12.0	...	...	44.5	19	...
89	6/1	1342	47°11'15"	88°46'10"	5.8	...	...	...	...	5.3	36.3	12.7	...	...	44.0	11	79.3
90	6/1	1849	46°58'10"	88°23'50"	4.1	...	...	...	...	4.0	63.1	12.4	...	...	45.0	12	78.7
91	6/1	1921	46°58'50"	88°16'45"	3.7	...	...	...	...	3.8	67.1	12.3	...	...	44.0	12	79.0
92	6/1	1948	46°59'20"	88°10'30"	6.4	6.4	0	4.9	3.0	4.4	36.9	12.4	...	...	43.0	11	78.7
93	6/1	2020	46°59'55"	88°03'45"	6.9	...	...	...	...	4.2	39.3	12.7	...	...	44.0	11	78.3
94	6/1	2100	46°58'10"	87°55'50"	3.6	...	...	...	...	3.5	65.5	12.0	...	...	44.5	10	78.7
95	6/1	2135	46°57'30"	87°48'10"	3.9	...	...	...	...	3.8	51.5	12.3	...	...	44.5	8	78.7
96	6/1	2200	46°56'15"	87°42'50"	3.0	...	...	...	...	3.0	64.6	12.3	...	...	44.5	8	78.7

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
97	6/1	2228	46°54'20"	87°35'00"	2.9	...	...	...	...	2.9	67.1			(Station 2)			
98	6/1	2330	46°49'15"	87°32'00"	3.4	...	...	...	...	3.4	67.1	13.0	...	...	46.5	17	78.7
99	6/1	2400	46°45'25"	87°29'00"	3.4	...	...	...	...	3.4	64.9	13.0	...	...	44.5	7	78.7
100	6/2	0030	46°40'45"	87°15'10"	3.3	...	...	...	...	4.1	55.5	12.5	...	...	43.0	11	78.7
101	6/2	0100	46°36'15"	87°21'40"	...	...	...	...	...	...	...	12.8	...	...	44.5	18	78.7
Cruise III																	
1	6/11	1409	46°31'00"	87°16'40"	6.9	6.9	0	5.7	6.1	5.2	24.4	...	...	...	...	...	...
2	6/12	1005	46°31'40"	87°07'35"	6.8	...	...	...	...	4.6	30.5			(Station 29)			
3	6/12	1345	46°31'45"	86°56'10"	8.5	...	...	...	...	4.3	36.9			(Station 1)			
4	6/12	1515	46°34'25"	87°02'20"	6.9	6.9	0	5.8	1.5	4.3	41.1			(Station 30)			
5	6/13	0930	46°33'13"	87°10'20"	6.7	6.7	0	4.6	3.4	4.2	61.0	...	...	...	...	...	...
6	6/13	1045	46°34'25"	87°02'20"	7.4	7.4	0	4.8	9.1	4.4	42.4	...	...	...	...	...	...
7	6/13	1248	46°35'30"	86°59'10"	7.5	...	...	...	...	4.1	53.9	...	...	...	...	...	...
8	6/13	1343	46°40'12"	86°54'47"	3.4	...	...	...	...	3.3	176.8			(Station 31)			
9	6/13	1343	46°40'12"	86°54'47"	...	...	...	...	...	...	...	...	...	...	...	...	...
10	6/13	1517	46°36'40"	86°43'30"	3.5	...	...	...	...	3.5	181.4	...	...	...	...	...	...
11	6/13	1615	46°35'00"	86°36'10"	8.9	8.9	0	4.9	6.1	4.3	67.1			(Station 32)			
12	6/13	1704	46°31'25"	86°35'35"	10.9	10.9	0	7.3	3.4	4.8	38.4			(Station 33)			
13	6/14	0957	46°31'25"	86°35'35"	8.5	8.5	0	5.6	10.7	4.2	56.1			(Station 33)			
14	6/14	1111	46°35'00"	86°43'30"	7.5	7.5	6.1	4.1	19.8	3.9	91.4			(Station 32)			
15	6/14	1206	46°36'20"	86°30'50"	4.2	...	...	...	...	3.8	141.7	...	...	...	...	...	...
16	6/14	1234	46°37'40"	86°25'00"	3.8	...	...	...	...	3.8	153.9	...	...	...	...	...	...

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples]
(cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
17	6/14	1523	46°40'20"	86°15'10"	6.8	6.8	1.5	5.8	3.0	4.9	26.2	...	...	...	...	...	...
18	6/14	1816	46°45'05"	86°02'35"	4.2	...	...	...	...	4.2	47.5			(Station 35)			
19	6/15	1000	46°45'05"	86°02'35"	...	...	...	...	...	...	...			(Station 35)			
20	6/15	1242	46°43'50"	86°23'00"	3.9	...	...	...	...	3.6	207.3			(Station 36)			
21	6/15	1345	46°42'02"	86°29'00"	3.9	...	...	...	...	3.9	85.3	...	...	...	...	...	...
22	6/15	1420	46°39'50"	86°36'10"	3.9	...	...	...	...	3.9	97.5	...	...	...	...	...	...
23	6/15	1454	46°38'35"	86°40'35"	3.7	...	...	...	...	3.7	202.7			(Station 37)			
24	6/16	1204	46°36'10"	86°39'05"	7.5	7.5	0	4.4	7.6	4.0	109.7	...	...	...	...	...	...
25	6/16	1315	46°38'35"	86°40'35"	3.9	...	...	...	...	3.9	182.9			(Station 37)			
26	6/16	1538	46°26'50"	86°37'45"	9.2	...	...	...	...	6.3	50.9	...	...	...	...	...	...
27	6/17	0946	46°26'50"	86°37'45"	8.5	8.4	7.0	7.4	10.7	6.4	65.5			(Station 38)			
28	6/18	1030	46°33'40"	86°48'05"	6.5	6.4	7.6	5.1	15.5	4.4	57.6			(Station 39)			
29	6/18	1536	46°31'17"	86°33'20"	8.4	8.0	10.7	6.0	17.1	4.7	62.2			(Station 40)			
30	6/19	0951	46°31'17"	86°33'20"	8.9	8.7	7.9	5.9	21.3	4.3	64.6			(Station 40)			
31	6/19	1132	46°38'00"	86°30'00"	4.1	...	...	...	...	4.1	51.2	12.3	...	...	...	10	78.1
32	6/19	1202	46°40'00"	86°25'00"	4.0	...	...	...	...	4.0	103.6	12.3	...	...	...	10	78.1
33	6/19	1238	46°40'30"	86°18'00"	6.6	...	...	...	...	5.7	16.2	12.3	...	...	...	10	78.3
34	6/21	0852	46°40'25"	85°57'30"	13.0	...	...	...	...	12.6	15.5			(Station 41)			
35	6/21	1535	46°35'00"	86°37'48"	5.8	...	...	...	...	4.4	40.2	12.3	...	...	...	9	77.4
36	6/22	1330	46°31'25"	86°57'25"	8.6	...	...	...	...	8.6	21.9			(Station 1)			
37	6/23	1047	46°31'15"	86°56'30"	7.9	...	...	...	...	7.5	28.0			(Station 1)			

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples]
(cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
Cruise IV																	
1	7/1	1607	46°37'25"	87°25'40"	10.7	10.7	1.2	9.4	5.8	9.1	13.7			(Station 43)			
2	7/2	0822	46°37'39"	87°25'38"	10.6	10.6	0	9.6	3.4	8.3	20.1	12.2	...	5	...	9	77.2
3	7/2	1420	46°33'35"	87°21'00"	10.0	9.8	10.4	8.6	13.7	5.9	28.7			(Station 44)			
4	7/3	0905	46°33'35"	87°21'00"	10.0	...	...	...	...	9.6	30.8			(Station 44)			
5	7/3	1007	46°39'40"	87°21'20"	10.3	8.8	13.7	5.1	36.6	4.6	63.1	12.2	...	5	...	8	77.4
6	7/3	1035	46°43'40"	87°22'55"	8.7	8.0	16.2	4.8	29.0	4.2	61.0			(Station 45)			
7	7/3	1035	46°43'40"	87°22'55"	...	...	...	...	...	...	...	...	...	...	...	...	...
8	7/3	1130	46°46'25"	87°24'10"	8.3	7.0	21.3	5.2	32.0	4.4	79.2	12.2	...	6	...	12	78.7
9	7/3	1200	46°50'48"	87°26'00"	...	...	...	...	...	...	...	12.2	...	6	...	8	78.0
10	7/3	1219	46°53'35"	87°27'10"	6.4	...	...	...	...	4.4	61.0			(Station 46)			
11	7/3	1219	46°53'35"	87°27'10"	6.4	...	...	...	...	4.4	91.4			(Station 46)			
12	7/3	1310	46°57'00"	87°28'40"	7.0	...	...	...	...	4.3	91.4	12.4	...	5	...	...	77.4
13	7/3	1342	47°01'35"	87°30'48"	6.5	...	...	...	...	4.2	115.8	12.4	...	5	...	8	78.7
14	7/3	1412	47°06'10"	87°32'48"	7.5	7.5	0	5.5	6.1	3.4	121.9	12.4	...	6	...	6	77.7
15	7/3	1442	47°10'30"	87°34'25"	7.0	...	...	...	...	4.1	128.0	12.4	...	6	...	...	77.7
16	7/3	1451	47°12'40"	87°35'40"	6.9	...	...	...	...	4.2	121.9			(Station 47)			
17	7/3	1451	47°12'40"	87°35'40"	...	...	...	...	...	...	...			(Station 47)			
18	7/3	1551	47°17'10"	87°37'30"	9.2	...	...	...	...	4.4	97.5	12.4	...	6	...	4	79.0
19	7/3	1620	47°21'06"	87°39'10"	9.5	9.5	0	6.4	18.3	5.6	41.8	13.1	...	6	...	5	79.3
20	7/3	1635	47°22'00"	87°39'35"	8.9	...	...	...	...	5.3	61.0			(Station 48)			
21	7/3	1720	47°23'45"	87°40'35"	8.7	...	...	...	...	7.9	20.1	13.1	...	5	...	7	80.7
22	7/3	1852	47°28'00"	87°43'00"	8.5	...	...	...	...	4.9	97.5	13.1	...	6	...	5	81.1
23	7/3	1834	47°29'30"	87°47'10"	7.7	...	...	...	...	6.0	61.0			(Station 49)			

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
24	7/4	0930	47°30'20"	87°46'00"	...	...	...	...	...	...	...			(Station 49)			
25	7/4	0930	47°30'20"	87°46'00"	9.0	...	...	...	...	4.5	85.3			(Station 49)			
26	7/4	1035	47°33'05"	87°50'00"	4.7	...	...	...	...	3.9	176.8	12.5	...	6	...	...	77.7
27	7/4	1113	47°37'25"	87°55'50"	4.0	...	...	...	...	3.7	204.2	12.5	...	5	...	...	78.7
28	7/4	1146	47°41'05"	88°01'00"	4.0	...	...	...	...	3.6	204.2	12.5	...	6	...	...	78.0
29	7/4	1230	47°46'00"	88°07'50"	3.9	...	...	...	...	3.6	204.2	12.5	...	5	...	7	78.0
30	7/4	1302	47°49'45"	88°12'40"	3.9	...	...	...	...	3.6	207.3	12.5	...	6	...	...	77.4
31	7/4	1330	47°52'45"	88°16'50"	3.9	...	...	...	...	3.5	207.3	12.5	...	5	...	...	78.0
32	7/4	1352	47°55'00"	88°20'00"	3.9	...	...	...	...	3.4	262.1			(Station 50)			
33	7/4	1517	47°59'15"	88°25'45"	3.9	...	...	...	...	3.5	207.3	12.4	...	6	...	Tr.	77.4
34	7/4	1546	48°02'20"	88°30'00"	6.0	...	...	...	...	4.0	207.3	12.4	...	5	...	Tr.	77.4
35	7/4	1635	48°04'15"	88°33'20"	5.3	...	...	...	...	4.4	41.5	12.4	...	5	...	Tr.	77.4
36	7/5	0905	48°04'15"	88°33'20"	5.4	...	...	...	...	4.4	61.0			(Station 51)			
37	7/5	1013	48°00'30"	88°38'10"	5.9	...	...	...	...	4.1	128.0	12.4	...	5	...	12	77.7
38	7/5	1055	47°57'15"	88°46'20"	7.5	...	...	...	...	4.2	109.7	12.4	...	5	...	1	77.4
39	7/5	1103	47°57'25"	88°47'20"	6.6	...	...	...	...	4.3	91.4			(Station 52)			
40	7/5	1345	47°54'40"	88°53'00"	7.2	6.6	24.7	4.9	29.0	4.6	35.4			(Station 53)			
41	7/5	1505	47°51'10"	88°55'20"	6.9	6.5	12.2	5.2	18.3	4.0	176.8	12.4	...	5	...	6	77.4
42	7/5	1536	47°49'20"	89°01'25"	6.0	...	...	...	...	4.0	128.0	12.4	...	5	...	8	77.4
43	7/5	1610	47°48'50"	89°08'50"	7.9	7.9	0	5.0	12.5	4.5	32.3	12.4	...	5	...	8	78.3
44	7/5	1639	47°50'18"	89°14'48"	6.9	...	...	...	...	4.5	30.8	12.4	...	5	...	106	78.0
45	7/6	1000	47°55'20"	89°14'00"	5.2	...	...	...	...	3.9	169.1	12.3	...	5	...	7	78.3
46	7/6	1031	47°58'00"	89°08'30"	4.7	...	...	...	...	3.7	176.8	12.3	...	6	...	...	78.7

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18}x10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
47	7/6	1056	48°00'30"	89°03'50"	4.7	...	...	...	...	3.9	164.6	12.3	...	5	...	...	77.7
48	7/6	1131	48°03'40"	88°57'40"	4.5	...	...	...	...	3.9	182.9	12.3	...	5	...	...	77.7
49	7/6	1139	48°04'20"	88°56'20"	4.6	...	...	...	...	3.9	187.5	(Station 55)					
50	7/6	1313	48°02'10"	88°56'30"	4.6	...	...	...	...	4.6	103.6	12.3	...	5	...	9	77.7
51			slide missing									...	...	...	...	...	...
52	7/6	1400	48°00'25"	88°03'15"	4.7	...	...	...	...	3.8	182.9	12.3	...	6	...	9	79.0
53	7/8	1213	47°03'00"	88°20'20"	7.0	...	...	...	...	5.4	42.1	(Station 4)					
54	7/8	1458	47°03'25"	88°19'40"	7.1	6.9	16.8	6.0	22.9	5.7	43.3	(Station 4)					
55	7/8	1550	46°59'30"	88°22'00"	8.0	7.3	15.8	5.8	24.4	5.6	29.6	(Station 56)					
56	7/9	0946	47°03'25"	88°19'40"	7.2	6.9	17.1	6.0	21.3	5.7	29.0	(Station 4)					
57	7/9	1307	47°12'30"	88°08'00"	8.1	...	...	...	...	5.6	41.8	(Station 57)					
58	7/9	1539	47°03'25"	88°19'40"	8.4	8.4	0	6.2	16.5	5.8	35.4	(Station 4)					
59	7/10	0918	47°15'55"	88°35'40"	10.6	...	...	...	...	10.5	21.9	(Station 58)					
60	7/10	1558	47°04'12"	88°29'25"	...	...	...	...	...	...	...	(Station 10)					
61	7/10	1558	47°04'12"	88°29'25"	19.3	18.8	9.1	16.4	13.7	16.2	18.6	(Station 10)					
62	7/11	0809	46°58'00"	88°25'50"	17.4	17.4	0	7.7	3.0	6.8	9.8	12.4	...	12	...	32	78.3
63	7/11	0820	46°56'48"	88°24'10"	11.8	11.6	4.6	10.0	9.4	7.4	21.0	12.4	...	5	...	6	78.0
64	7/11	0830	46°55'38"	88°22'42"	12.0	11.8	4.3	8.8	9.8	7.8	22.9	12.4	...	5	...	8	77.4
65	7/11	0840	46°54'24"	88°21'28"	12.5	12.0	6.1	9.7	10.7	5.1	79.2	12.4	...	6	...	9	77.7
66	7/11	0855	46°53'50"	88°20'32"	12.7	...	...	...	...	6.9	18.3	12.4	...	5	...	8	77.4
67	7/11	1008	46°53'30"	88°20'10"	11.8	11.0	8.8	6.0	25.9	5.9	28.0	12.4	...	6	...	9	77.4
68	7/11	1134	46°53'30"	88°21'35"	12.7	11.4	8.2	9.7	10.7	6.0	32.0	(Station 59)					
69	7/11	1353	46°54'24"	88°21'50"	14.0	14.0	0	9.2	15.2	4.3	134.1	(Station 60)					

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion: Upper limits Temperature (°C.)	Metalimnion: Upper limits Depth (meters)	Metalimnion: Lower limits Temperature (°C.)	Metalimnion: Lower limits Depth (meters)	Deepest reading Temperature (°C.)	Deepest reading Depth (meters)						
70	7/11	1544	46°49'10"	88°25'40"	...	...	...	...	...	...	...	12.4	...	5	45.0	...	77.4
71	7/11	1631	46°49'20"	88°27'30"	13.8	13.8	0	7.8	9.4	5.0	61.0			(Station 61)			
72	7/11	1714	46°49'20"	88°27'30"	14.4	14.4	0	8.9	6.1	4.8	61.0			(Station 61)			
73	7/11	1726	46°49'20"	88°27'30"	...	...	...	...	...	...	...			(Station 61)			
74	7/11	1730	46°49'20"	88°27'30"	...	...	...	...	...	...	...			(Station 61)			
75	7/11	1734	46°49'20"	88°27'30"	...	...	...	...	...	...	...			(Station 61)			
76	7/11	1804	46°48'45"	88°27'20"	13.2	13.2	0	8.5	5.8	4.9	51.2			(Station 61)			
77	7/12	0740	46°49'20"	88°27'30"	14.0	14.0	0	8.1	11.9	5.3	56.4			(Station 61)			
78	7/12	0813	46°50'25"	88°26'15"	15.2	15.2	0	7.6	16.8	5.0	94.5	12.4	...	6	43.0	...	77.4
79	7/12	0823	46°51'30"	88°24'40"	14.5	14.5	0	7.0	19.8	4.5	103.6	12.4	...	5	42.0	...	77.4
80	7/12	0833	46°52'40"	88°23'20"	15.0	15.0	0	6.6	18.3	4.5	115.8	12.4	...	6	44.0	...	77.7
81	7/12	0854	46°53'05"	88°21'55"	15.1	15.1	0	6.9	18.6	5.4	38.4	12.4	...	5	42.0	...	77.4
82	7/12	0903	46°54'05"	88°20'30"	...	...	...	...	...	...	...	12.4	...	5	43.0	...	77.7
83	7/12	0912	46°54'55"	88°19'00"	13.0	13.0	0	10.9	6.1	4.5	91.4	12.4	...	5	42.0	...	78.0
84	7/12	0921	46°55'55"	88°17'35"	13.0	13.0	0	11.0	6.1	4.4	121.9	12.4	...	5	44.0	...	77.7
85	7/12	0930	46°56'50"	88°16'10"	14.0	14.0	0	10.2	6.1	4.4	146.3	12.4	...	4	43.0	...	77.4
86	7/12	0940	46°57'25"	88°14'25"	12.7	12.7	0	10.0	6.1	4.4	143.3	12.4	...	5	44.0	...	77.7
87	7/12	0950	46°58'00"	88°12'30"	12.5	12.5	0	9.7	6.1	4.7	91.4	12.4	...	5	43.0	...	77.7
88	7/12	1000	46°58'45"	88°10'30"	12.0	12.0	0	9.3	6.4	5.3	47.2	12.4	...	4	44.0	...	78.0
89	7/12	1015	46°59'15"	88°07'25"	11.4	...	...	...	...	5.6	43.3	12.4	...	5	43.0	...	77.7
90	7/12	1030	46°59'02"	88°04'10"	12.5	12.5	0	10.1	4.3	6.8	33.8	12.4	...	5	44.0	...	79.7
91	7/12	1045	46°58'55"	88°01'00"	13.0	13.0	0	9.8	6.1	4.6	67.1	12.4	...	4	44.0	...	78.1
92	7/12	1100	46°58'05"	87°57'55"	13.0	13.0	0	10.6	6.1	4.5	73.2	12.4	...	5	44.0	...	77.7

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18}x10^6$)
					Surface (°C.)	Metalimnion: Upper limits: Temperature (°C.)	Metalimnion: Upper limits: Depth (meters)	Metalimnion: Lower limits: Temperature (°C.)	Metalimnion: Lower limits: Depth (meters)	Deepest reading: Temperature (°C.)	Deepest reading: Depth (meters)						
93	7/12	1115	46°57'05"	87°55'00"	12.3	...	...	...	...	6.2	40.8	12.4	...	5	44.0	...	77.4
94	7/12	1130	46°56'15"	87°51'55"	12.8	12.8	0	10.5	4.9	8.7	24.7	12.4	...	4	43.0	...	77.4
95	7/12	1145	46°55'15"	87°49'00"	13.2	13.2	0	10.8	3.7	5.7	39.6	12.4	...	5	44.0	...	77.4
96	7/12	1200	46°54'20"	87°46'05"	11.7	11.7	0	10.0	6.4	9.4	24.4	12.2	...	4	45.0	...	77.7
97	7/12	1215	46°53'30"	87°43'00"	13.3	13.3	0	10.4	3.0	8.5	34.7	12.3	...	5	44.0	...	79.7
98	7/12	1230	46°52'20"	87°40'15"	13.9	13.9	0	11.0	3.0	7.1	33.2	12.3	...	5	44.0	...	79.0
99	7/12	1308	46°54'20"	87°37'00"	9.9	...	...	...	...	4.4	97.5			(Station 2)			
100	7/12	1400	46°51'05"	87°34'45"	10.5	...	...	...	...	4.6	61.0	12.3	...	5	44.0	...	78.3
101	7/12	1422	46°48'50"	87°32'15"	10.4	...	...	...	...	4.8	61.0	12.3	...	5	45.0	...	79.0
102	7/12	1430	46°48'03"	87°31'45"	11.0	10.8	2.1	8.6	11.0	4.9	61.0	12.4	...	5	45.0	...	78.3
103	7/12	1445	46°46'05"	87°30'15"	11.1	11.0	1.8	9.8	3.4	5.1	44.5	12.4	...	5	43.0	...	78.3
104	7/12	1500	46°44'10"	87°28'40"	11.5	11.4	1.8	10.1	2.7	4.9	61.0	12.4	...	5	43.0	...	77.4
105	7/12	1515	46°42'15"	87°27'05"	11.4	...	...	...	...	5.8	44.5	12.4	...	5	42.0	...	77.4
106	7/12	1533	46°39'40"	87°25'10"	11.5	...	...	...	...	5.9	47.2	12.4	...	4	44.0	...	78.7
107	7/12	1545	46°38'00"	87°23'55"	13.1	...	...	...	...	5.5	38.1	12.5	...	5	45.0	...	77.4
108	7/12	1600	46°35'55"	87°22'35"	13.7	...	...	...	...	7.6	31.1	12.5	...	4	44.0	...	77.7
109	7/12	1615	46°33'50"	87°21'40"	14.0	14.0	0	12.8	3.0	7.7	30.5	12.5	...	4	43.0	...	77.4
110	7/13	0832	46°31'55"	87°18'05"	13.8	13.7	0.9	12.3	2.1	10.5	27.4	12.5	...	5	43.0	...	79.0
111	7/13	0840	46°31'57"	87°16'30"	13.7	9.6	33.5	5.5	42.7	5.1	48.5	12.5	...	4	45.0	...	78.3
112	7/13	0850	46°32'05"	87°14'15"	...	...	...	...	...	...	...	12.5	...	4	44.0	...	79.0
113	7/13	0903	46°32'15"	87°11'20"	14.0	13.9	4.3	10.8	6.1	7.0	44.8	12.4	...	4	46.0	...	78.0
114	7/13	0910	46°32'20"	87°09'45"	14.0	14.0	1.5	9.7	9.1	8.1	31.7	12.4	...	5	43.0	...	78.3
115	7/13	0920	46°32'25"	87°07'30"	13.5	13.3	1.5	10.3	4.9	9.0	30.8	12.4	...	5	43.0	...	77.7

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
116	7/13	0930	46°32'35"	87°05'20"	13.4	13.4	0	11.1	1.8	8.7	29.3	12.4	...	4	43.0	...	78.0
117	7/13	0940	46°32'45"	87°03'15"	12.8	12.6	2.4	11.1	5.2	9.4	21.9	12.4	...	4	43.0	...	77.4
118	7/13	0950	46°32'50"	87°00'50"	13.6	13.5	1.8	12.1	4.6	10.3	19.2	12.4	...	4	44.0	...	77.4
119	7/13	1000	46°32'40"	86°58'50"	...	...	...	...	...	...	...	12.4	...	4	44.0	...	78.0
120	7/13	1100	46°31'10"	86°55'50"	12.8	12.7	9.4	9.9	19.8	9.1	27.7			(Station 1)			
121	7/13	1411	46°31'50"	86°56'05"	...	...	...	...	...	...	...			(Station 1)			
122	7/13	1517	46°32'30"	86°58'55"	14.4	...	...	...	...	10.0	18.3	12.4	...	4	45.0	...	79.0
123	7/13	1527	46°33'15"	87°00'55"	...	...	...	...	...	...	...	12.4	...	5	46.0	...	78.7
124	7/13	1537	46°34'05"	87°02'50"	13.0	13.0	0	11.1	2.7	6.9	30.5	12.4	...	4	44.0	...	78.7
125	7/13	1547	46°34'35"	87°04'10"	13.0	12.6	2.4	10.4	4.6	6.0	38.1	12.4	...	5	44.0	...	78.7
126	7/13	1557	46°35'20"	87°05'55"	13.5	13.5	0	9.7	7.6	4.5	61.0	12.4	...	5	46.0	...	78.7
127	7/13	1600	46°35'40"	87°06'30"	13.0	13.0	0	9.7	6.1	4.8	55.2			(Station 62)			
128	7/13	1700	46°34'25"	87°10'45"	13.8	13.8	0	11.7	2.1	5.1	58.5	12.4	...	5	44.0	...	82.9
129	7/13	1710	46°33'50"	87°12'55"	14.2	14.0	1.8	10.0	5.8	5.3	41.1	12.3	...	4	45.0	...	82.9
130	7/13	1721	46°33'15"	87°14'15"	14.3	14.3	0	11.0	12.2	4.5	67.1	12.3	...	5	45.0	...	77.4
131	7/13	1730	46°32'45"	87°15'50"	14.0	...	...	...	...	5.7	50.3	12.3	...	4	45.0	...	77.4
132	7/13	1750	46°32'00"	87°21'25"	13.9	...	...	...	...	10.3	18.3	12.3	...	5	46.0	...	79.0
Cruise V																	
1	7/22	0915	46°32'10"	87°13'45"	16.9	16.1	6.4	10.0	10.7	4.4	49.7	12.3	1.10	5	...	9	76.8
2	7/22	0945	46°32'25"	87°09'05"	17.5	17.5	3.4	11.2	6.1	5.6	27.4	12.3	1.10	5	...	1	76.5
3	7/22	1015	46°32'40"	87°02'30"	16.7	16.2	3.7	8.6	11.6	7.5	18.9	12.3	1.25	5	...	Tr.	77.5
4	7/22	1340	46°31'20"	86°55'30"	16.5	14.8	5.2	10.1	9.4	5.3	28.3			(Station 1)			

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion: Upper limits		Metalimnion: Lower limits		Deepest reading							
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
5	7/22	1545	46°36'10"	86°55'50"	18.8	18.8	0	10.0	13.7	4.1	118.9	12.3	1.20	5	...	2	76.8
6	7/23	1415	46°57'40"	87°53'10"	14.2	13.4	17.1	7.8	23.8	6.2	46.0	12.4	1.15	5	...	Tr.	77.2
7	7/23	1448	46°59'45"	88°00'20"	14.2	13.0	16.8	8.0	29.0	4.8	59.1	12.4	1.15	5	...	1	77.2
8	7/23	1515	47°00'45"	88°06'05"	14.3	12.5	15.2	8.2	21.9	6.5	45.7	12.4	1.15	5	...	1	78.2
9	7/23	1545	47°01'45"	88°12'45"	14.3	11.4	22.6	7.8	29.9	5.0	50.0	12.4	1.15	5	...	1	78.5
10	7/23	1615	47°02'40"	88°19'15"	10.6	...	...	...	...	6.0	45.7	12.4	1.15	5	...	7	79.5
11	7/23	1815	47°04'00"	88°20'00"	10.7	8.6	18.0	7.1	19.5	7.0	20.7			(Station 4)			
12	7/23	1857	47°00'45"	88°21'05"	10.3	10.0	12.5	6.3	39.3	6.3	39.3	12.4	...	...	...	...	...
13	7/24	0830	46°58'00"	88°24'30"	9.7	...	...	...	...	8.4	29.3	12.4	1.15	5	...	Tr.	78.8
14	7/24	0900	47°01'20"	88°20'45"	11.1	...	...	...	...	6.1	34.1	12.4	1.15	5	...	Tr.	79.5
15	7/24	0936	47°04'00"	88°20'00"	10.4	...	...	...	...	8.4	21.9			(Station 4)			
16	7/24	1128	47°00'15"	88°12'00"	16.8	16.8	0	9.0	18.3	4.2	158.5	12.4	1.15	5	...	Tr.	78.8
17	7/24	1403	46°58'45"	88°18'45"	14.4	14.2	3.0	7.7	20.4	5.2	54.6	12.3	1.10	5	...	Tr.	78.5
18	7/24	1626	47°04'00"	88°20'00"	10.7	...	...	...	...	7.1	22.9	12.3	1.10	5	...	Tr.	78.8
19	7/24	1747	46°59'15"	88°22'20"	15.6	15.4	2.7	9.5	6.7	7.3	28.3	12.3	1.10	5	...	Tr.	78.8
20	7/25	0915	47°16'00"	88°39'00"	15.6	...	...	...	...	11.3	21.9	12.0	1.05	5	...	Tr.	77.8
21	7/25	0945	47°19'30"	88°43'30"	11.2	10.4	12.2	6.1	30.5	4.3	102.1	12.0	1.05	5	...	Tr.	77.5
22	7/25	0959	47°21'30"	88°45'30"	9.8	9.4	9.1	6.0	24.4	4.0	152.4			(Station 11)			
23	7/25	0959	47°21'30"	88°45'30"	...	...	...	...	...	...	...			(Station 11)			
24	7/25	1136	47°27'30"	88°49'30"	10.3	9.9	9.1	4.8	27.4	3.9	176.8	12.0	1.05	5	...	Tr.	77.8
25	7/25	1205	47°32'00"	88°53'00"	10.7	10.5	9.1	5.0	30.5	4.1	153.9	12.0	1.05	5	...	4	78.8
26	7/25	1244	47°35'30"	88°59'20"	11.5	11.0	9.1	5.0	24.4	3.9	198.1			(Station 12)			
27	7/25	1244	47°35'30"	88°59'20"	...	...	...	...	...	...	...			(Station 12)			

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
28	7/25	1500	47°38'00"	89°15'00"	12.5	11.5	7.6	4.6	24.4	3.7	196.6	12.3	1.05	5	...	8	77.8
29	7/25	1530	47°42'00"	89°12'00"	12.5	11.0	7.6	5.2	18.3	3.9	173.7	12.3	1.05	5	...	15	77.8
30	7/25	1600	47°45'20"	89°14'15"	14.7	14.7	0	6.0	18.3	4.0	167.6	12.3	1.05	5	...	8	78.2
31	7/25	1700	47°48'50"	89°13'55"	11.1	11.1	0	7.0	6.1	4.3	32.9	12.3	1.05	5	...	8	78.5
32	7/25	1719	47°50'40"	89°14'40"	12.0	12.0	0	4.4	16.8	4.3	27.7	12.3	1.05	5	...	9	78.2
33	7/26	0940	47°48'50"	89°13'55"	11.8	11.8	0	5.6	11.6	4.3	56.1			(Station 63)			
34	7/26	1045	47°47'35"	89°22'25"	13.5	13.5	0	5.5	15.2	3.9	176.8	12.3	1.05	6	...	16	77.8
35	7/26	1115	47°46'35"	89°29'05"	13.8	13.8	0	6.0	15.2	3.8	195.1	12.3	1.05	5	...	8	78.2
36	7/26	1145	47°45'35"	89°35'40"	13.5	13.5	0	6.0	18.3	3.8	161.5	12.3	1.05	5	...	7	77.5
37	7/26	1230	47°44'10"	89°45'25"	14.0	14.0	0	4.9	18.3	3.8	190.5	12.3	1.05	5	...	7	77.8
38	7/26	1300	47°43'10"	89°52'05"	13.8	13.8	0	5.0	16.8	3.8	179.8	12.3	1.05	5	...	4	77.2
39	7/26	1345	47°43'30"	90°01'40"	...	...	...	...	...	...	...			(Station 15)			
40	7/26	1345	47°43'30"	90°01'40"	13.5	13.5	0	5.3	18.3	3.8	195.1			(Station 15)			
41	7/26	1515	47°47'20"	90°05'40"	9.0	9.0	0	6.0	18.3	4.5	73.2	12.3	1.05	5	...	7	77.2
42	7/26	1615	47°45'45"	90°09'05"	10.5	10.5	0	6.0	18.3	4.0	140.2	12.3	1.05	5	...	7	77.5
43	7/26	1645	47°45'00"	90°15'50"	11.4	11.4	0	7.0	18.3	4.1	111.3	12.3	1.05	5	...	7	77.2
44	7/26	1752	47°43'50"	90°18'15"	...	...	...	...	...	...	...	12.3	1.05	5	...	5	77.2
45	7/27	0910	47°43'50"	90°18'15"	6.9	6.8	6.1	4.8	14.6	4.1	61.0			(Station 16)			
46	7/27	1015	47°39'40"	90°21'00"	12.5	12.2	9.1	5.5	24.4	4.0	164.6	12.3	...	...	...	...	...
47	7/27	1045	47°34'30"	90°22'00"	13.0	12.5	7.6	5.4	19.8	3.9	173.7	12.3	1.10	5	...	7	77.5
48	7/27	1108	47°30'30"	90°23'00"	13.0	12.7	6.1	5.0	21.3	4.0	170.7			(Station 64)			
49	7/27	1108	47°30'30"	90°23'00"	...	...	...	...	...	...	...			(Station 64)			
50	7/27	1215	47°25'45"	90°23'30"	12.2	12.2	0	6.0	24.4	4.4	97.5	12.3	1.10	5	...	5	77.2

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion upper limits		Metalimnion lower limits		Deepest reading							
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
51	7/27	1245	47°21'30"	90°25'45"	13.9	13.9	0	6.0	22.9	4.4	97.5	12.3	1.10	5	...	5	76.8
52	7/27	1315	47°17'00"	90°27'00"	12.3	12.3	0	6.1	24.4	4.4	100.6	12.3	1.10	5	...	4	76.8
53	7/27	1355	47°12'30"	90°27'30"	14.5	14.5	0	6.0	24.4	4.6	74.7	12.3	1.10	5	...	4	77.2
54	7/27	1425	47°08'00"	90°28'30"	16.2	16.2	0	13.7	3.0	5.4	54.7	12.3	1.10	5	...	6	77.2
55	7/27	1500	47°02'55"	90°29'25"	18.3	18.3	0	14.1	3.7	6.5	39.3	12.3	1.10	5	...	5	77.8
56	7/27	1530	46°58'20"	90°29'25"	18.3	18.3	0	14.6	3.7	4.7	60.4	12.3	1.10	5	...	7	77.8
57	7/27	1600	46°55'25"	90°30'00"	17.7	17.7	0	8.9	19.8	4.7	121.9	12.3	1.10	5	...	6	77.5
58	7/27	1630	46°52'40"	90°37'45"	18.7	18.7	0	15.0	3.4	4.4	61.0	12.3	1.10	5	...	6	77.5
59	7/27	1700	46°50'15"	90°43'20"	19.0	19.0	0	15.9	2.4	5.0	49.4	12.3	1.10	5	...	6	77.5
60	7/28	0845	46°50'25"	90°46'25"	16.5	15.9	5.8	12.1	9.8	5.9	33.5	12.3	1.10	5	...	6	77.5
61	7/28	0915	46°54'40"	90°45'10"	15.8	15.5	5.8	6.2	25.0	6.2	25.0	12.3	1.10	5	...	6	77.8
62	7/28	0945	46°58'20"	90°49'10"	15.1	14.9	3.7	7.6	22.9	7.6	22.9	12.3	1.10	5	...	6	77.8
63	7/28	1324	47°00'45"	90°47'35"	16.5	14.7	9.8	8.2	19.8	6.7	29.6			(Station 20)			
64	7/28	1530	46°58'25"	90°54'30"	16.5	...	...	...	...	6.6	21.6			(Station 65)			
65	7/28	1750	46°51'00"	90°40'40"	16.5	15.4	8.8	12.5	11.9	4.8	57.3			(Station 66)			
66	7/29	0922	46°51'00"	90°40'40"	16.6	16.4	3.7	8.1	21.3	4.7	56.7			(Station 66)			
67	7/29	1015	46°53'35"	90°34'20"	16.0	15.5	7.6	6.7	30.5	4.8	94.5	12.3	1.10	5	...	6	78.2
68	7/29	1045	46°55'15"	90°28'50"	16.5	15.7	7.6	11.4	13.7	4.7	103.6	12.3	1.10	5	...	4	77.8
69	7/29	1614	46°55'30"	90°26'55"	17.6	17.6	0	9.6	15.2	4.9	61.0	12.3	1.10	5	...	4	78.2
70	7/29	1634	46°53'55"	90°33'05"	17.8	14.7	13.7	7.9	23.5	5.0	56.4	12.3	1.10	5	...	4	77.8
71	7/30	0815	46°46'20"	90°48'35"	18.0	17.3	3.4	13.5	4.9	4.7	37.2	12.3	1.10	5	...	4	77.8
72	7/30	0844	46°44'25"	90°45'25"	15.7	15.3	6.1	12.5	7.6	6.3	27.4	12.3	1.10	5	...	5	77.5
73	7/30	0915	46°46'30"	90°39'25"	16.0	...	...	...	...	5.9	34.7	12.3	1.10	5	...	6	77.2

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
74	7/30	1058	46°48'40"	90°38'35"	16.3	...	...	...	...	6.1	30.5	12.3	1.10	5	...	12	76.5
75	7/30	1210	46°44'25"	90°48'10"	20.5	20.5	0	16.6	2.1	6.1	32.0	12.3	1.20	5	...	11	77.8
76	7/30	1552	46°46'50"	90°49'15"	20.0	18.6	3.7	16.1	4.9	5.1	43.0			(Station 23)			
77	7/30	1616	46°49'20"	90°47'25"	18.7	...	...	...	...	5.5	39.9			(Station 21)			
78	7/31	0829	46°46'10"	90°48'35"	19.5	19.5	0	15.4	2.4	6.8	29.6	12.3	1.10	7	...	11	77.5
79	7/31	0854	46°44'25"	90°45'25"	19.4	19.4	0	15.2	4.9	6.3	30.2	12.3	1.10	5	...	11	77.5
80	7/31	0930	46°44'50"	90°37'30"	17.8	17.4	4.9	15.0	6.1	6.2	31.7	12.3	1.10	5	...	11	77.2
81	7/31	1000	46°45'35"	90°31'00"	17.8	17.5	3.7	13.8	6.7	6.8	32.0	12.3	1.05	5	...	11	76.5
82	7/31	1030	46°46'25"	90°24'25"	18.5	18.5	0	8.5	18.3	4.5	73.2	12.3	1.10	5	...	10	76.5
83	7/31	1100	46°47'10"	90°17'45"	18.5	18.5	0	7.5	19.8	4.0	100.6	12.3	1.10	5	...	5	77.5
84	7/31	1130	46°47'50"	90°11'20"	18.0	17.2	4.9	7.0	20.1	4.4	61.0	12.3	1.05	5	...	5	77.2
85	7/31	1200	46°48'40"	90°04'45"	17.5	17.5	0	5.5	27.4	3.8	146.3	12.3	1.05	5	...	4	77.2
86	7/31	1230	46°49'25"	89°58'10"	16.8	16.8	2.7	6.1	21.3	4.2	61.0	12.3	1.10	5	...	4	76.8
87	7/31	1300	46°50'10"	89°51'40"	17.0	14.6	11.6	6.0	21.3	4.0	61.0	12.3	1.10	5	...	6	77.2
88	7/31	1330	46°50'55"	89°45'05"	18.4	18.4	0	7.1	18.3	4.2	55.2			(Station 69)			
89	7/31	1530	46°52'45"	89°37'55"	17.0	17.0	4.3	6.2	18.4	4.2	61.0	12.3	1.10	5	...	4	76.8
90	7/31	1600	46°55'05"	89°32'15"	15.9	15.9	4.3	6.6	12.8	4.0	61.0	12.3	1.10	5	...	58	77.2
91	7/31	1630	46°57'25"	89°26'35"	13.8	11.3	13.4	7.5	14.6	4.4	61.0	12.3	1.10	5	...	21	77.5
92	7/31	1701	46°54'20"	89°21'45"	17.1	16.9	4.9	5.2	28.0	5.0	33.8			(Station 27)			
93	8/1	0844	46°54'20"	89°21'45"	17.3	17.0	7.6	6.5	20.1	4.4	36.6	12.4	1.10	5	...	7	77.5
94	8/1	0915	46°57'35"	89°18'00"	16.7	16.6	4.3	8.1	14.6	4.6	36.6	12.4	1.10	5	...	7	77.2
95	8/1	0945	47°00'30"	89°12'50"	15.5	15.3	7.0	6.6	20.4	4.3	56.1	12.4	1.10	5	...	9	77.2
96	8/1	1015	47°02'25"	89°07'20"	16.6	16.6	8.5	9.5	19.8	4.8	50.0	12.4	1.10	5	...	8	78.2
97	8/1	1045	47°04'50"	89°01'50"	17.0	17.0	4.6	7.5	17.1	4.2	61.0	12.4	1.10	5	...	6	77.8

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
98	8/1	1115	47°07'15"	88°56'20"	16.6	16.3	3.7	7.4	22.9	5.1	36.6	12.4	1.10	5	...	7	77.5
99	8/1	1145	47°09'45"	88°50'40"	16.2	16.2	6.1	6.6	29.0	6.0	40.8	12.4	1.10	5	...	8	77.5
100	8/1	1215	47°12'15"	88°45'00"	15.8	15.5	5.2	6.0	27.4	5.6	33.5	12.4	1.10	5	...	8	77.2
101	8/1	1245	47°14'15"	88°38'25"	15.8	15.5	6.1	12.6	12.2	12.2	15.5	12.4	1.10	5	...	7	77.2
102	8/2	1055	46°49'20"	88°27'30"	16.0	15.4	34.1	11.4	36.0	7.9	58.2			(Station 61)			
103	8/2	1520	46°48'20"	88°26'55"	15.5	...	...	...	...	7.1	61.0			(Station 9)			
104	8/3	0826	47°00'05"	88°21'25"	16.1	...	...	...	...	15.3	22.3	12.4	1.25	5	...	6	80.2
105	8/3	0953	47°04'00"	88°20'00"	16.1	...	...	...	...	15.6	19.0	12.4	1.25	5	...	12	80.2
106	8/3	1030	47°02'20"	88°12'15"	14.0	13.8	8.2	9.9	24.4	9.7	32.0	12.4	1.20	5	...	10	79.5
107	8/3	1046	47°01'30"	88°08'50"	15.0	14.6	7.6	10.0	19.8	6.2	93.0	12.4	1.20	5	...	7	79.2
108	8/3	1115	46°00'05"	88°02'45"	14.5	14.3	7.9	10.1	18.9	7.9	46.6	12.4	1.25	5	...	7	79.5
109	8/3	1145	46°48'30"	87°56'30"	12.4	...	...	...	...	6.4	61.0	12.4	1.15	5	...	7	79.5
110	8/3	1230	46°55'50"	87°47'45"	10.5	10.4	5.8	9.0	7.6	6.3	50.3	12.4	1.15	5	...	7	78.2
111	8/3	1300	46°53'45"	87°42'00"	11.3	11.3	5.8	8.7	8.2	5.1	61.0	12.4	1.10	5	...	6	78.2
112	8/3	1330	46°51'40"	87°36'20"	11.0	11.0	6.7	7.5	13.4	5.2	45.7	12.3	1.10	5	...	4	78.2
113	8/3	1400	46°47'45"	87°32'55"	14.2	14.1	3.0	8.9	9.8	4.4	61.0	12.3	1.10	5	...	0	77.8
114	8/3	1430	46°43'50"	87°29'20"	15.5	14.7	7.9	10.5	11.6	4.4	45.4	12.3	1.10	5	...	3	77.5
115	8/3	1500	46°39'55"	87°26'00"	16.3	16.3	5.8	13.2	7.9	5.0	36.6	12.3	1.10	5	...	4	77.5
116	8/3	1530	46°35'55"	87°22'40"	15.2	14.9	6.1	4.5	21.3	4.3	32.0	...	...	...	...	...	...
Cruise VI																	
1	8/12	0900	46°31'55"	87°21'15"	11.7	...	...	...	...	8.9	13.1	12.3	1.15	5	...	...	78.5
2	8/12	0930	46°32'10"	87°14'45"	14.3	12.4	9.8	8.0	18.3	6.9	39.6	12.3	1.15	5	...	...	77.5

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18}x10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
3	8/12	1000	46°32'25"	87°08'20"	16.4	16.2	6.1	7.6	16.5	6.5	30.5	12.3	1.15	6	...	...	77.5
4	8/12	1030	46°32'45"	87°01'45"	16.9	...	...	...	...	15.2	11.3	12.3	1.15	5	...	...	78.2
5	8/12	1153	46°31'20"	86°55'30"	16.1	13.6	14.6	10.0	16.5	6.5	31.1			(Station 1)			
6	8/12	1500	46°33'10"	86°59'55"	15.0	14.1	6.4	7.5	9.4	6.0	12.8	12.3	1.10	5	...	...	79.2
7	8/12	1602	46°35'40"	87°06'30"	17.5	16.5	7.6	8.1	13.1	5.1	58.2			(Station 62)			
8	8/12	1744	46°34'10"	87°12'50"	16.9	16.9	0	7.0	22.9	4.6	82.3	12.3	1.15	6	...	6	80.2
9	8/13	0915	46°32'00"	87°19'40"	12.9	...	...	...	...	8.1	20.1	12.3	1.15	6	...	7	79.2
10	8/13	0945	46°32'15"	87°13'10"	15.7	15.7	0	6.8	25.9	6.4	52.4	12.3	1.20	6	...	5	79.9
11	8/13	1015	46°32'35"	87°06'30"	17.7	15.8	7.9	10.0	9.8	6.5	28.0	12.3	1.20	6	...	7	79.2
12	8/13	1045	46°32'50"	87°00'00"	17.7	17.1	4.9	10.1	10.7	10.1	10.7	12.3	1.10	6	...	5	79.9
13	8/13	1138	46°31'20"	86°55'30"	17.2	17.2	0	7.7	16.8	6.4	30.5	12.3	1.20	6	...	14	79.9
14	8/13	1220	46°33'35"	86°48'55"	17.5	16.7	6.1	11.5	12.2	4.4	97.5	12.3	1.15	6	...	6	79.5
15	8/13	1252	46°35'15"	86°43'45"	17.3	17.0	6.1	11.0	13.7	4.0	192.0			(Station 71)			
16	8/13	1632	46°30'05"	86°43'05"	17.2	17.2	5.2	6.8	19.8	5.4	39.6	12.3	1.15	5	...	5	79.5
17	8/13	1719	46°26'18"	86°38'30"	15.5	15.5	4.9	11.0	10.7	7.2	61.0	12.3	1.15	6	...	7	80.2
18	8/14	0851	46°26'18"	86°38'30"	14.9	13.7	8.2	8.9	14.0	6.9	61.0			(Station 72)			
19	8/14	1033	46°33'20"	86°34'50"	16.5	16.1	11.6	10.1	16.8	6.6	33.8			(Station 73)			
20	8/14	1450	46°28'46"	86°35'50"	16.0	14.9	6.4	11.4	10.7	11.2	12.5			(Station 74)			
21	8/15	0815	46°25'30"	86°39'05"	15.2	14.6	10.7	10.2	14.0	8.1	25.0			(Station 72)			
22	8/15	0900	46°30'30"	86°33'35"	16.6	16.6	9.1	7.2	35.1	6.2	46.3	12.3	1.10	6	...	9	78.2
23	8/15	0930	46°33'45"	86°29'15"	17.1	17.0	9.1	6.7	32.0	5.0	54.9	12.3	1.10	5	...	...	77.8
24	8/15	1000	46°36'00"	86°23'35"	17.0	17.0	11.3	7.7	25.6	4.9	61.0	12.3	1.10	5	...	5	78.5
25	8/15	1008	46°36'35"	86°22'00"	17.1	16.9	11.6	6.7	25.0	5.7	45.7	12.3	...	...	...	...	...

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples]
(cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
26	8/15	1030	46°38'20"	86°17'50"	16.7	16.2	13.7	11.3	20.1	11.3	20.1	12.3	1.10	5	...	5	78.5
27	8/15	1100	46°40'40"	86°12'10"	16.6	15.7	11.0	9.0	17.1	8.6	21.6	12.3	1.10	5	...	7	78.2
28	8/15	1237	46°40'40"	86°06'05"	16.6	...	...	...	...	16.1	16.5			(Station 75)			
29	8/15	1507	46°40'40"	86°06'05"	17.0	16.0	11.3	9.1	17.4	8.0	24.4	12.3	1.15	5	...	...	77.8
30	8/15	1544	46°45'15"	86°02'10"	16.8	15.9	12.5	7.0	21.9	5.4	61.0			(Station 76)			
31	8/15	1717	46°40'35"	85°58'35"	18.2	...	...	...	...	11.2	11.6			(Station 77)			
32	8/16	0704	46°48'30"	86°03'00"	16.2	16.2	13.4	7.9	22.9	4.9	61.0	12.3	1.10	5	...	...	78.5
33	8/16	0730	46°52'00"	86°05'30"	17.2	17.0	12.2	6.5	30.5	4.0	164.6	12.3	1.10	5	...	...	78.2
34	8/16	0800	46°56'30"	86°08'00"	16.5	16.4	12.2	5.5	30.5	3.9	207.3	12.3	1.10	5	...	...	77.5
35	8/16	0830	47°01'00"	86°11'00"	16.2	16.1	12.2	5.5	30.5	3.9	207.3	12.3	1.05	5	...	...	78.2
36	8/16	0900	47°04'45"	86°13'30"	15.2	15.2	12.2	5.0	36.6	3.8	207.3	12.3	1.05	5	...	...	78.2
37	8/16	0930	47°08'30"	86°17'00"	14.6	14.4	10.7	6.0	30.5	4.0	152.4	12.3	1.05	5	...	...	78.2
38	8/16	1340	47°09'30"	86°15'15"	14.5	14.2	12.2	5.5	30.5	3.5	274.3			(Station 78)			
39	8/16	1358	47°09'30"	86°15'15"	14.5	14.0	12.2	5.0	36.6	3.5	274.3			(Station 78)			
40	8/16	1403	47°09'30"	86°15'15"	14.6	14.2	12.2	5.5	30.5	3.5	274.3			(Station 78)			
41	8/16	1408	47°09'30"	86°15'15"	15.0	14.1	12.2	5.0	36.6	3.5	274.3			(Station 78)			
42	8/16	1610	47°14'30"	86°12'00"	14.4	14.3	7.6	5.5	36.6	3.9	201.2	12.3	1.05	5	...	...	77.8
43	8/16	1630	47°19'00"	86°08'50"	14.7	14.6	7.6	5.5	30.5	4.0	179.8	12.3	1.05	5	...	...	77.8
44	8/16	1700	47°23'12"	86°06'06"	14.7	14.6	9.1	5.0	36.6	3.9	201.2	12.3	1.05	5	...	...	77.5
45	8/16	1730	47°27'18"	86°03'18"	14.8	14.6	9.1	5.5	24.4	4.1	131.1	12.3	1.10	5	...	...	77.2
46	8/17	0830	47°40'42"	85°49'00"	14.9	14.9	13.7	6.5	42.7	4.3	146.3	12.3	1.05	5	...	...	77.2
47	8/17	0850	47°38'18"	85°51'45"	15.0	14.9	12.2	5.7	33.5	4.0	170.7	12.3	1.05	5	...	...	76.8
48	8/17	0910	47°35'48"	85°54'30"	15.0	14.9	16.8	5.5	36.0	4.4	121.9	12.3	1.05	6	...	...	76.5

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
49	8/17	0930	47°33'20"	85°57'25"	14.3	14.3	4.6	6.4	30.5	4.6	61.0	12.3	1.05	5	...	...	77.2
50	8/17	0950	47°31'00"	86°00'12"	14.4	14.1	12.2	5.6	32.0	4.0	173.7	12.3	1.10	5	...	...	78.5
51	8/17	1147	47°28'05"	86°02'54"	14.0	13.6	12.2	5.5	30.5	3.6	274.3			(Station 79)			
52	8/18	0830	47°40'00"	85°49'15"	14.5	14.5	12.2	5.6	48.8	4.0	158.5	12.3	1.15	5	...	5	77.2
53	8/18	0900	47°36'30"	85°53'40"	14.6	14.5	12.2	5.5	36.6	4.0	140.2	12.3	1.10	5	...	6	78.2
54	8/18	0930	47°32'55"	85°57'55"	14.5	14.4	12.2	6.0	36.6	4.0	196.6	12.3	1.10	5	...	9	78.8
55	8/18	1000	47°29'25"	86°02'20"	14.6	14.3	12.2	5.5	33.5	4.0	198.1	12.3	1.10	5	...	6	78.8
56	8/18	1141	47°31'10"	86°00'35"	15.0	14.5	12.2	5.5	33.5	4.0	201.2	12.3	1.10	5	...	8	77.5
57	8/18	1212	47°31'40"	85°55'35"	15.6	14.0	13.7	6.5	25.9	4.5	85.3	12.3	1.10	5	...	5	77.5
58	8/18	1230	47°31'55"	85°51'55"	15.0	14.1	10.7	5.5	36.0	5.0	61.0	12.3	1.10	5	...	5	77.5
59	8/18	1250	47°32'20"	85°47'25"	15.2	14.2	13.1	6.5	25.9	4.6	61.0	12.3	1.10	5	...	8	76.5
60	8/18	1310	47°32'28"	85°42'50"	15.6	15.0	13.7	5.7	36.6	4.1	152.4	12.3	1.10	5	...	6	76.5
61	8/18	1330	47°32'40"	85°38'30"	15.1	14.6	15.2	5.5	36.6	4.1	132.6	12.3	1.10	5	...	4	76.8
62	8/18	1350	47°32'55"	85°33'50"	15.0	14.5	13.7	5.5	33.5	4.5	97.5	12.3	1.10	5	...	6	77.5
63	8/18	1410	47°32'47"	85°29'35"	15.0	13.9	9.1	5.0	27.4	3.9	131.1	12.3	1.10	5	...	3	77.5
64	8/18	1430	47°32'23"	85°25'00"	15.5	14.5	12.2	5.4	30.5	3.9	184.4	12.3	1.10	6	...	11	77.8
65	8/18	1444	47°32'05"	85°24'00"	15.2	14.7	12.2	5.5	30.5	4.0	189.0			(Station 80)			
66	8/18	1552	47°32'35"	85°14'15"	15.9	15.3	13.7	5.5	30.5	3.9	198.1	12.3	1.10	5	...	5	77.5
67	8/18	1615	47°32'55"	85°09'20"	16.4	15.6	13.7	5.5	30.5	4.0	134.1	12.3	1.10	5	...	6	77.5
68	8/18	1635	47°33'05"	85°04'40"	16.0	15.6	7.3	10.7	12.2	4.4	106.7	12.3	1.10	5	...	...	76.8
69	8/18	1655	47°33'20"	85°00'10"	15.7	15.6	5.8	7.9	21.9	4.0	129.8	12.3	1.10	4	...	...	77.5
70	8/18	1725	47°33'20"	84°56'35"	15.1	14.8	4.9	7.3	30.5	5.7	61.0	12.3	1.10	5	...	...	77.5
71	8/19	0826	47°33'20"	84°56'35"	14.0	...	...	...	...	5.9	61.0			(Station 81)			

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
72	8/19	0908	47°27'25"	84°59'40"	15.2	14.9	7.3	6.9	36.6	6.9	36.6	12.3	1.10	6	...	...	76.8
73	8/19	0929	47°26'32"	84°59'25"	15.1	...	...	...	...	6.0	47.2	12.3	1.10	5	...	...	76.5
74	8/19	0929	47°26'32"	84°59'25"	...	...	...	...	...	...	...	...	...	...	...	...	...
75	8/19	0929	47°26'32"	84°59'25"	15.2	14.3	10.7	8.6	24.4	5.5	47.2	...	...	...	...	...	...
76	8/19	1005	47°23'35"	84°58'15"	16.4	15.8	13.7	7.9	24.4	4.8	59.4	12.3	1.10	4	...	5	77.5
77	8/19	1025	47°20'40"	84°57'10"	16.2	15.1	12.8	7.2	25.9	4.1	137.2	12.3	1.10	4	...	...	78.2
78	8/19	1045	47°17'40"	84°56'05"	16.7	15.1	14.3	6.6	32.0	3.9	137.2	12.3	1.10	4	...	5	77.5
79	8/19	1106	47°14'30"	84°54'55"	17.2	16.1	14.6	6.8	30.5	4.4	67.4	12.3	1.10	5	...	...	77.5
80	8.19	1121	47°12'15"	84°54'00"	17.0	16.4	12.2	7.8	27.4	7.3	39.6	12.3	1.10	5	...	...	77.5
81	8/19	1145	47°08'35"	84°52'35"	17.2	16.4	11.0	10.1	16.2	10.0	16.2	12.3	1.10	5	...	5	77.5
82	8/19	1207	47°05'15"	84°51'25"	17.5	16.5	9.1	8.7	21.3	6.8	49.4	12.3	1.10	5	...	...	77.8
83	8/19	1225	47°02'35"	84°50'20"	16.1	13.3	12.2	7.8	18.9	3.6	127.7	12.3	1.10	5	...	...	76.5
84	8/19	1245	46°59'30"	84°49'12"	16.0	14.4	14.3	9.2	21.3	4.7	106.7	12.3	1.10	5	...	...	76.5
85	8/19	1422	46°56'40"	84°46'25"	14.9	14.7	4.3	8.6	18.3	6.6	52.1			(Station 82)			
86	8/20	0835	46°51'00"	84°33'20"	17.1	16.8	7.6	12.7	18.9	12.7	18.9			(Station 83)			
87	8/20	1021	46°46'35"	84°39'15"	16.3	15.5	12.2	11.3	22.3	11.3	22.3			(Station 84)			
88	8/20	1150	46°43'30"	84°37'50"	18.0	17.4	7.0	9.8	22.6	8.2	33.5	12.3	1.20	5	...	8	77.2
89	8/20	1211	46°40'15"	84°36'50"	18.3	17.2	12.2	9.1	21.3	5.6	70.1	12.3	1.20	5	...	11	77.5
90	8/20	1230	46°37'35"	84°33'55"	18.4	16.7	12.2	10.1	18.3	5.7	58.5	12.3	1.30	5	...	6	78.2
91	8/20	1306	46°35'35"	84°35'40"	17.5	16.7	14.3	5.8	45.7	5.5	56.4			(Station 85)			
92	8/20	1351	46°32'50"	84°37'10"	17.8	15.6	22.6	7.1	30.5	5.6	44.8	12.3	1.05	5	...	6	77.5
93	8/21	0930	46°29'30"	84°35'40"	17.5	...	...	...	...	17.5	12.8	12.3	1.10	5	...	8	77.5
94	8/21	0945	46°30'35"	84°38'35"	18.0	16.4	20.4	10.4	25.9	8.4	40.2	12.3	1.10	5	...	6	78.2

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
95	8/21	1000	46°31'45"	84°41'25"	18.1	...	...	...	...	17.5	11.9	12.3	1.10	5	...	...	77.5
96	8/21	1015	46°32'55"	84°44'25"	18.5	17.1	21.3	8.1	35.1	4.7	61.0	12.3	1.10	5	...	...	77.5
97	8/21	1030	46°34'35"	84°47'20"	18.4	17.0	14.6	13.1	20.1	12.5	25.3	12.3	1.10	5	...	...	77.5
98	8/21	1045	46°35'12"	84°50'15"	18.3	16.9	19.8	11.9	25.9	5.7	61.0	12.3	1.10	5	...	...	76.8
99	8/21	1101	46°36'15"	84°53'00"	18.0	...	...	...	...	12.6	28.0	12.3	1.10	5	...	...	77.2
100	8/21	1132	46°35'15"	84°53'00"	17.6	...	...	...	...	12.0	33.2			(Station 86)			
101	8/21	1206	46°35'55"	84°50'00"	17.9	17.7	10.7	8.6	36.6	6.1	57.9	12.3	1.10	5	...	...	77.5
102	8/21	1215	46°35'55"	84°47'50"	18.1	17.5	13.7	6.3	48.8	6.0	60.0	12.3	1.10	5	...	9	77.5
103	8/21	1230	46°35'55"	84°44'40"	18.9	16.7	21.3	8.3	32.0	4.6	102.1	12.3	1.10	4	...	6	77.2
104	8/21	1245	46°35'55"	84°51'30"	18.5	16.9	20.7	9.5	33.5	7.9	42.4	12.3	1.15	4	...	...	77.2
105	8/21	1300	46°35'55"	84°38'10"	18.5	17.2	14.6	9.5	25.0	5.5	59.4	12.3	1.15	4	...	...	77.5
106	8/21	1341	46°35'55"	84°35'40"	18.5	16.3	19.8	6.9	32.9	5.3	54.3			(Station 85)			
107	8/21	1415	46°39'20"	84°35'40"	18.4	15.7	16.8	9.3	24.4	5.5	61.0	12.3	1.10	4	...	...	76.8
108	8/21	1435	46°42'25"	84°36'00"	...	...	...	...	...	...	...	12.3	1.10	4	...	...	77.2
109	8/21	1456	46°45'35"	84°36'10"	18.4	16.6	13.7	9.6	28.7	9.6	31.1	...	1.10	4	...	...	77.2
110	8/21	1515	46°48'30"	84°35'35"	18.0	14.6	18.9	10.2	25.9	8.0	38.4	...	1.10	4	...	...	76.5
111	8/21	1535	46°51'30"	84°34'45"	17.5	15.4	15.2	7.8	42.7	7.8	42.7	...	1.10	4	...	5	76.2
112	8/21	1556	46°53'45"	84°34'10"	18.3	15.2	15.8	9.5	30.5	8.1	43.9			(Station 87)			
113	8/22	0815	46°53'45"	84°35'20"	17.9	15.4	16.2	8.0	40.2	8.0	40.2	...	1.10	4	...	7	75.9
114	8/22	0830	46°52'15"	84°38'20"	17.6	17.0	6.1	15.9	7.6	15.4	13.7	...	...	...	...	...	...
115	8/22	0845	46°52'25"	84°40'40"	17.2	17.0	4.9	15.7	6.7	15.0	15.8	...	1.10	4	...	7	76.2
116	8/22	0900	46°52'00"	84°43'50"	16.7	14.7	15.2	9.2	27.4	5.0	89.9	...	...	...	...	...	...
117	8/22	0915	46°51'30"	84°47'05"	16.7	14.1	14.9	11.0	17.1	8.6	37.5	...	1.10	5	...	9	77.5

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18}x10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
118	8/22	0930	46°51'05"	84°50'25"	16.7	15.9	15.2	13.1	21.9	13.1	21.9	...	...	...	...	...	...
119	8/22	0945	46°50'35"	84°53'45"	17.2	15.6	23.8	7.6	33.2	6.2	49.1	...	1.10	5	...	7	77.5
120	8/22	1001	46°50'10"	84°56'55"	17.3	16.1	25.0	7.6	32.0	4.9	61.0	...	...	...	...	...	...
121	8/22	1015	46°50'40"	85°00'00"	17.6	16.4	21.6	7.1	32.0	5.2	57.9	...	1.10	5	...	9	78.2
122	8/22	1030	46°49'30"	85°02'40"	17.7	16.4	21.9	7.7	25.9	5.5	33.8	...	...	...	...	...	...
123	8/22	1045	46°47'55"	85°05'20"	17.7	...	...	...	...	17.0	11.6	...	1.10	5	...	7	78.5
124	8/22	1100	46°47'25"	85°08'30"	17.8	...	...	...	...	17.0	10.7	...	...	...	...	...	...
125	8/22	1130	46°46'45"	85°15'15"	18.5	...	...	...	...	17.2	11.3	...	1.10	5	...	9	78.2
126	8/22	1200	46°46'10"	85°21'40"	18.7	17.1	14.0	11.7	22.3	11.7	22.3	...	1.10	4	...	9	78.2
127	8/22	1230	46°45'40"	85°28'15"	18.5	17.0	11.3	7.7	29.0	6.0	37.8	...	1.10	5	...	9	77.8
128	8/22	1245	46°45'20"	85°31'35"	19.0	17.0	13.7	7.3	29.0	5.2	61.0	...	...	...	...	...	...
129	8/22	1300	46°45'05"	85°35'50"	18.9	16.7	16.8	6.7	27.4	4.4	97.5	...	1.10	6	...	9	78.2
130	8/22	1315	46°44'45"	85°39'10"	18.9	16.4	15.2	6.7	28.0	4.0	112.8	...	...	...	...	...	...
131	8/22	1330	46°44'30"	85°41'35"	19.0	17.1	12.2	6.9	30.5	4.5	85.3	...	1.10	5	...	9	77.8
132	8/22	1345	46°44'10"	85°44'50"	19.6	16.9	13.7	9.2	27.4	6.0	52.4	...	...	...	...	...	...
133	8/22	1400	46°43'50"	85°48'10"	19.5	16.9	11.6	13.3	16.8	11.7	23.1	...	1.10	5	...	9	78.2
134	8/22	1415	46°43'35"	85°51'30"	20.0	16.5	10.7	14.3	12.2	13.1	25.0	...	...	...	...	...	...
135	8/22	1430	46°43'15"	85°54'45"	19.6	16.9	9.1	15.0	10.7	13.2	16.8	...	1.15	5	...	8	76.2
136	8/22	1445	46°42'55"	85°57'55"	20.0	...	...	...	...	14.9	15.5	...	...	...	...	...	...
137	8/22	1500	46°42'30"	86°00'30"	19.3	...	...	...	...	15.5	18.9	...	1.15	6	...	5	76.2
138	8/22	1515	46°42'10"	86°03'45"	19.7	19.7	0	18.2	4.3	17.1	17.1	...	...	...	...	...	...
139	8/22	1530	46°41'50"	86°07'05"	19.1	19.1	0	18.0	4.6	16.9	15.8	12.3	1.15	4	...	11	76.2
140	8/22	1545	46°41'30"	86°10'20"	19.3	19.3	0	18.1	2.1	16.4	15.8	...	...	...	...	...	...

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion: Upper limits: Temperature (°C.)	Metalimnion: Upper limits: Depth (meters)	Metalimnion: Lower limits: Temperature (°C.)	Metalimnion: Lower limits: Depth (meters)	Deepest reading: Temperature (°C.)	Deepest reading: Depth (meters)						
141	8/22	1600	46°40'45"	86°12'45"	20.1	20.1	0	18.1	2.4	15.5	14.3	12.3	1.15	4	...	11	76.5
142	8/22	1615	46°39'35"	86°15'45"	19.5	19.5	0	18.2	1.5	15.0	18.0	...	...	...	...	...	...
143	8/22	1630	46°38'25"	86°18'30"	19.6	16.6	13.4	11.9	21.6	11.9	21.6	12.3	1.15	4	...	5	76.8
144	8/22	1645	46°37'15"	86°21'35"	21.0	21.0	0	18.4	1.8	11.3	22.9	...	...	...	...	...	...
145	8/22	1700	46°36'00"	86°24'30"	20.0	20.0	0	7.5	34.1	5.0	76.5	12.3	1.10	4	...	5	77.2
146	8/22	1715	46°34'50"	86°27'25"	19.7	16.4	16.8	8.4	30.5	5.8	64.0	...	...	...	...	...	...
147	8/22	1730	46°33'40"	86°30'10"	19.4	16.1	16.8	10.6	21.9	6.8	61.0	...	...	...	...	...	...
148	8/22	1745	46°31'45"	86°32'10"	20.7	16.8	14.6	9.1	22.9	7.5	39.9	12.3	1.15	4	...	14	76.8
149	8/22	1800	46°30'00"	86°34'05"	20.5	16.3	16.2	13.0	18.9	7.4	39.6	...	...	...	...	...	...
150	8/22	1815	46°28'10"	86°36'05"	20.2	...	...	...	...	17.2	11.3	12.3	1.15	4	...	7	76.8
151	8/22	1828	46°26'35"	86°37'45"	19.4	17.1	11.0	9.1	18.6	7.1	59.1	...	...	...	...	...	...
152	8/23	0813	46°26'28"	86°38'05"	19.1	16.6	12.5	9.1	19.8	7.0	53.6	12.3	1.15	4	...	10	77.2
153	8/23	0840	46°29'55"	86°34'40"	18.6	16.6	13.7	7.7	31.4	4.9	58.5	12.3	1.15	4	...	9	77.2
154	8/23	0900	46°32'35"	86°32'35"	18.9	16.7	15.2	7.8	32.0	4.0	97.5	12.3	1.10	4	...	9	75.9
155	8/23	0920	46°35'10"	86°30'20"	18.9	16.2	15.2	10.3	24.4	4.2	122.5	12.3	1.10	5	...	8	76.2
156	8/23	0940	46°37'50"	86°28'05"	18.4	18.4	5.2	7.6	22.9	6.4	29.3	12.3	1.10	4	...	9	76.2
157	8/23	1000	46°40'30"	86°25'50"	18.4	18.4	6.1	6.4	29.0	4.2	103.0	12.3	1.10	5	...	11	76.2
158	8/23	1034	46°44'00"	86°23'00"	17.7	17.7	0	6.0	36.6	3.9	202.7			(Station 88)			
159	8/23	1233	46°46'15"	86°29'40"	17.0	17.0	0	13.2	6.1	7.5	25.0			(Station 89)			
160	8/23	1255	46°44'30"	86°30'50"	18.4	16.8	13.7	7.2	21.9	3.9	121.9	12.3	1.20	5	...	5	77.2
161	8/23	1315	46°42'35"	86°34'15"	18.3	17.7	7.6	8.4	18.9	4.2	76.2	12.3	1.20	5	...	12	77.5
162	8/23	1335	46°40'35"	86°37'25"	18.8	16.7	11.9	7.2	25.9	4.2	112.2	12.3	1.10	4	...	7	76.2
163	8/23	1355	46°38'40"	86°41'10"	19.5	16.5	16.7	7.6	30.5	3.9	204.2	...	...	...	...	...	...

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
164	8/23	1420	46°37'30"	86°46'20"	18.9	16.0	12.2	9.7	18.3	8.7	22.9			(Station 90)			
165	8/23	1500	46°35'45"	86°42'25"	20.0	15.6	15.2	10.1	16.7	4.4	108.2	12.3	1.15	4	...	9	78.2
166	8/23	1520	46°34'15"	86°38'30"	20.3	18.0	11.0	15.5	15.8	15.5	15.8	12.3	1.20	4	...	8	78.5
167	8/23	1540	46°32'30"	86°35'25"	19.5	16.4	18.6	8.4	29.0	8.4	29.0	12.3	1.20	4	...	13	77.5
168	8/23	1558	46°30'30"	86°35'25"	19.0	17.1	15.2	7.4	38.4	7.4	38.4			(Station 74)			
169	8/23	1639	46°29'00"	86°35'25"	19.9	...	...	...	...	18.5	13.7	12.3	1.20	5	...	5	76.5
170	8/23	1659	46°26'15"	86°37'50"	20.3	16.6	12.8	9.4	19.8	7.0	59.1	12.3	1.20	5	...	9	77.8
171	8/24	0846	46°27'35"	86°42'00"	19.7	16.4	18.9	7.2	28.3	7.2	28.3	12.3	1.35	5	...	5	78.5
172	8/24	0905	46°30'15"	86°43'05"	19.8	16.1	16.8	6.9	28.0	6.0	41.5	12.3	1.20	5	...	6	78.5
173	8/24	0925	46°33'05"	86°44'25"	18.8	18.7	4.6	6.2	35.1	4.7	61.0	12.3	1.20	5	...	9	78.2
174	8/24	0945	46°36'00"	86°45'35"	19.1	18.6	4.6	10.0	21.0	10.0	21.0	12.3	1.20	4	...	11	78.2
175	8/24	1021	46°37'30"	86°46'20"	19.0	16.4	18.0	9.0	25.3	9.0	25.3			(Station 90)			
176	8/24	1040	46°35'35"	86°48'30"	19.4	...	...	...	...	3.9	91.4	12.3	1.20	5	...	8	77.2
177	8/24	1100	46°33'25"	86°51'45"	19.6	16.8	16.8	9.6	22.9	7.9	29.3	12.3	1.15	5	...	6	77.5
178	8/24	1123	46°31'20"	86°55'30"	19.4	16.9	14.3	8.5	23.5	6.1	29.3			(Station 1)			
179	8/24	1450	46°32'30"	86°58'55"	20.5	20.5	0	18.5	4.0	17.3	20.4	12.3	1.35	5	...	12	78.5
180	8/24	1515	46°34'25"	87°03'45"	20.9	16.6	15.8	6.4	30.5	6.0	33.8	12.3	1.20	4	...	5	77.5
181	8/24	1550	46°35'40"	87°06'30"	20.5	16.6	17.4	8.8	25.9	4.8	57.6			(Station 62)			
182	8/24	1645	46°35'05"	87°09'40"	21.2	16.6	20.1	10.5	26.5	5.7	48.2	12.3	1.15	5	...	9	78.5
183	8/24	1705	46°34'00"	87°13'55"	20.9	15.6	21.3	10.4	24.4	4.8	64.0	12.3	1.15	5	...	4	77.2
184	8/24	1725	46°33'00"	87°18'00"	21.7	16.5	19.5	7.1	29.3	5.9	41.1	12.3	1.15	5	...	9	78.2
185	8/24	1742	46°32'05"	87°21'35"	19.5	...	...	...	...	17.0	16.5	12.3	1.15	5	...	5	77.2

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
Cruise VII																	
1	9/2	0930	46°33'35"	87°21'45"	20.7	...	...	...	...	18.8	17.4	12.0	1.15	4	...	...	76.8
2	9/2	1000	46°37'35"	87°23'55"	21.2	19.4	12.8	11.3	27.7	11.3	27.7	12.0	1.15	4	...	...	78.2
3	9/2	1030	46°41'15"	87°26'45"	21.0	17.0	16.2	13.5	20.4	11.6	29.9	12.0	1.30	5	...	...	78.8
4	9/2	1100	46°45'20"	87°30'00"	21.4	21.2	3.7	7.9	41.1	7.9	41.1	12.0	1.20	4	...	...	79.9
5	9/2	1130	46°49'10"	87°32'50"	21.1	20.8	4.0	6.7	42.7	5.3	73.2	12.0	1.15	4	...	...	79.5
6	9/2	1215	46°54'20"	87°37'00"	20.6	20.3	5.5	8.3	28.3	5.0	85.3			(Station 2)			
7	9/2	1331	46°55'25"	87°43'30"	20.3	19.8	7.0	14.9	13.7	8.2	41.1	12.0	1.20	5	...	...	80.9
8	9/2	1400	46°56'30"	87°49'50"	20.4	20.2	6.1	12.4	16.8	11.5	26.5	12.0	1.20	5	...	...	79.9
9	9/2	1430	46°57'40"	87°56'20"	19.5	19.0	7.6	15.4	9.1	9.9	32.9	11.9	1.25	5	...	...	80.2
10	9/2	1530	46°58'20"	88°03'40"	19.6	19.0	8.5	16.1	10.1	10.8	39.3	11.9	1.25	4	...	...	79.9
11	9/2	1600	46°58'30"	88°09'30"	19.4	19.0	7.0	15.5	9.1	12.8	25.9	11.9	1.20	4	...	...	80.2
12	9/2	1644	46°56'55"	88°14'25"	18.6	18.3	8.8	15.0	12.8	4.7	97.5			(Station 91)			
13	9/2	1800	46°58'35"	88°20'20"	21.5	19.5	9.1	16.5	12.2	14.6	37.2	11.9	1.25	4	...	...	80.6
14	9/3	0815	46°57'45"	88°22'35"	20.0	14.4	39.0	8.6	42.7	6.0	60.0	11.9	1.25	5	...	...	80.6
15	9/3	0935	46°56'55"	88°14'25"	20.3	20.1	5.2	15.0	12.2	13.2	39.6			(Station 91)			
16	9/3	1505	46°58'35"	88°09'30"	20.6	19.5	9.1	15.2	16.2	15.2	16.2	11.9	1.20	5	...	...	80.2
17	9/3	1545	46°58'10"	88°18'20"	19.8	19.6	10.7	6.6	51.8	4.9	73.8	11.9	1.20	5	...	...	80.2
18	9/4	1430	47°04'12"	88°29'25"	22.3	22.2	9.1	18.0	12.5	17.7	17.7			(Station 10)			
19	9/5	0936	46°48'05"	88°23'40"	17.1	15.5	13.7	8.2	22.9	5.5	45.7	12.0	1.30	6	...	...	80.9
20	9/5	1006	47°01'50"	88°20'30"	15.4	15.0	7.6	5.5	32.0	5.3	41.1	12.0	1.25	5	...	...	80.9
21	9/5	1135	47°04'00"	88°20'00"	15.0	14.7	5.2	6.4	14.6	6.4	21.3	...	...	...	...	...	...
22	9/5	1203	47°05'40"	88°13'40"	15.9	15.6	14.3	7.6	22.9	4.6	53.3	12.0	1.15	5	...	...	79.5

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18}x10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
23	9/5	1320	47°08'15"	88°08'40"	15.7	15.7	12.2	8.8	27.4	5.4	59.4	12.0	1.30	5	...	...	80.6
24	9/5	1350	47°12'25"	88°05'10"	18.5	18.3	12.2	11.2	16.8	7.7	36.9	12.0	1.15	6	...	...	79.9
25	9/5	1435	47°14'55"	88°00'20"	18.8	18.4	15.2	10.5	22.9	5.3	47.2	12.0	1.20	5	...	...	78.2
26	9/5	1505	47°17'45"	87°54'20"	19.0	18.8	18.3	9.2	32.0	6.3	50.6	12.0	1.20	5	...	...	78.5
27	9/5	1535	47°20'20"	87°48'45"	19.1	19.0	28.3	8.4	45.7	8.4	45.7	12.0	1.35	5	...	...	79.9
28	9/5	1605	47°22'45"	87°43'40"	18.8	16.6	39.9	9.1	45.7	9.1	45.7	12.0	1.20	5	...	...	79.5
29	9/5	1635	47°26'20"	87°42'15"	19.7	...	...	...	...	19.0	35.4	11.8	1.20	6	...	...	80.2
30	9/5	1642	47°27'05"	87°42'55"	19.7	17.6	59.1	6.9	64.0	6.9	64.0	...	...	...	...	...	...
31	9/5	1705	47°28'50"	87°47'00"	19.6	16.7	61.6	6.4	67.0	4.6	75.9	11.8	1.20	5	...	...	79.9
32	9/5	1735	47°29'05"	87°50'45"	19.4	18.2	55.8	4.7	70.1	4.4	101.2	11.8	1.25	5	...	...	80.6
33	9/6	0815	47°29'30"	87°52'30"	18.9	16.7	57.9	6.4	70.1	5.6	76.2	11.8	1.15	5	...	...	79.9
34	9/6	0845	47°33'30"	87°56'00"	17.4	14.8	42.7	6.5	48.8	3.9	207.3	11.8	1.10	5	...	...	77.2
35	9/6	0915	47°37'00"	88°01'30"	14.2	14.2	27.4	5.0	35.1	4.0	179.8	11.8	1.15	6	...	...	77.8
36	9/6	0945	47°40'45"	88°05'00"	14.2	14.1	24.4	5.0	36.6	3.8	207.3	11.8	1.15	5	...	...	78.2
37	9/6	1015	47°44'30"	88°09'00"	14.5	14.3	24.4	5.3	38.1	3.8	202.7	11.8	1.15	5	...	...	78.2
38	9/6	1045	47°47'30"	88°13'00"	15.2	15.0	24.4	5.0	37.2	3.8	207.3	11.8	1.20	6	...	...	79.5
39	9/6	1119	47°50'00"	88°17'00"	15.1	14.9	16.5	6.5	20.4	4.1	61.0	11.8	1.15	5	...	...	79.2
40	9/6	1134	47°50'15"	88°17'15"	15.3	15.3	17.4	6.5	24.4	3.6	274.3			(Station 92)			
41	9/6	1345	47°55'05"	88°22'40"	13.8	13.6	13.1	6.0	21.3	3.7	214.9	12.2	...	5	...	...	78.8
42	9/6	1415	47°58'45"	88°26'40"	15.5	15.5	7.6	5.5	32.0	3.8	213.4	12.2	...	5	...	...	79.5
43	9/6	1445	48°02'25"	88°30'45"	15.1	15.0	19.8	5.5	36.6	4.0	164.6	12.2	...	6	...	...	80.2
44	9/6	1522	48°04'47"	88°34'44"	15.6	...	...	...	...	14.6	25.0	...	...	...	...	...	...
45	9/6	1540	48°04'47"	88°34'44"	15.2	...	...	...	...	14.3	42.7	...	...	...	...	...	...

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
46	9/7	0825	48°05'55"	88°34'20"	14.7	14.5	15.2	8.4	25.9	8.4	25.9	12.2	...	5	...	...	79.9
47	9/7	0901	48°04'47"	88°34'44"	15.0	...	...	...	...	12.4	39.6			(Station 93)			
48	9/7	0949	48°00'10"	88°39'15"	14.4	14.3	16.8	6.1	32.0	3.9	115.8	12.2	...	5	...	...	79.9
49	9/7	1032	47°57'25"	88°47'20"	14.4	14.3	10.4	7.2	33.5	4.4	91.4			(Station 52)			
50	9/7	1346	47°54'30"	88°54'20"	14.8	...	...	...	...	10.0	27.4			(Station 53)			
51	9/7	1540	47°50'40"	88°53'30"	7.5	...	...	...	...	3.9	207.3	11.9	...	6	...	...	78.5
52	9/7	1610	47°48'45"	88°59'30"	6.4	...	...	...	...	4.5	182.9	11.9	...	4	...	...	78.5
53	9/7	1640	47°47'10"	89°06'00"	8.8	...	...	...	...	4.0	170.7	11.9	...	5	...	...	78.5
54	9/7	1748	47°48'50"	89°13'55"	9.7	9.6	3.4	4.6	17.4	4.5	61.0	11.9	...	4	...	...	78.5
55	9/8	0818	47°53'30"	89°12'45"	14.7	14.4	4.0	8.5	7.0	4.6	21.9	11.9	...	4	...	...	78.8
56	9/8	0934	47°48'50"	89°13'55"	8.4	8.4	0	4.6	14.9	4.3	44.5			(Station 63)			
57	9/8	1031	47°45'00"	89°09'45"	10.0	...	...	...	...	4.6	176.8	11.8	...	5	...	...	78.5
58	9/8	1100	47°41'30"	89°11'15"	11.0	11.0	0	5.0	30.5	4.2	181.4	11.8	...	5	...	...	78.2
59	9/8	1130	47°37'45"	89°02'15"	12.5	12.5	0	4.7	32.0	3.9	184.4	11.8	...	5	...	...	78.2
60	9/8	1151	47°35'30"	88°59'20"	11.0	11.0	0	4.6	36.6	3.7	213.4			(Station 12)			
61	9/8	1200	47°35'30"	88°59'20"	11.0	11.0	0	4.9	29.0	4.3	61.0			(Station 12)			
62	9/8	1300	47°30'30"	88°54'45"	13.3	12.2	6.7	5.6	16.8	3.9	109.7	11.8	...	4	...	...	78.5
63	9/8	1330	47°27'00"	88°51'15"	14.0	12.5	19.8	5.5	36.6	3.9	207.3	11.8	...	5	...	...	78.5
64	9/8	1400	47°23'00"	88°47'00"	16.0	15.5	24.4	5.5	42.7	4.0	160.0	11.8	...	5	...	...	78.2
65	9/8	1430	47°19'00"	88°43'15"	18.4	15.0	33.5	6.7	39.6	5.1	77.7	12.5	...	5	...	...	78.5
66	9/8	1500	47°15'00"	88°38'40"	19.7	19.7	2.7	18.0	9.1	17.6	20.1	12.5	...	5	...	...	79.5
67	9/9	1000	46°58'00"	88°24'00"	18.3	18.0	32.0	16.5	38.4	16.5	38.4	12.5	...	5	...	...	80.2
68	9/9	1030	47°01'30"	88°20'40"	18.5	...	...	...	...	18.2	28.7	12.5	...	5	...	...	79.9

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
69	9/9	1133	47°03'25"	88°19'40"	18.7	...	...	...	...	18.4	21.9	12.5	...	4	...	...	79.5
70	9/9	1206	47°07'10"	88°15'15"	18.4	...	...	...	...	17.2	20.7	...	...	...	...	...	...
71	9/9	1400	47°12'30"	88°08'00"	17.7	...	...	...	...	17.0	32.6	12.4	...	4	...	...	79.5
72	9/9	1435	47°06'25"	88°11'20"	16.7	15.4	36.6	6.7	54.9	6.7	54.9	12.4	...	4	...	...	78.8
73	9/9	1505	47°02'15"	88°12'00"	17.4	...	...	...	...	15.3	21.9	12.4	...	5	...	...	78.8
74	9/9	1559	46°58'30"	88°11'45"	18.8	17.6	22.6	15.6	28.0	13.5	46.6	12.4	...	5	...	...	78.8
75	9/9	1630	46°58'15"	88°18'00"	18.3	17.8	29.0	9.2	67.1	9.2	67.1	12.4	...	5	...	...	78.8
76	9/9	1700	46°58'00"	88°24'15"	18.8	...	...	...	...	18.4	13.1	12.4	...	4	...	...	78.8
77	9/10	0830	46°58'05"	88°21'00"	18.4	18.2	19.5	17.7	21.3	17.4	35.4	12.4	...	5	...	...	79.9
78	9/10	0900	46°58'20"	88°14'20"	17.8	15.1	51.8	5.6	85.3	5.1	113.4	12.4	...	4	...	...	79.5
79	9/10	1153	46°58'45"	88°07'30"	17.8	...	...	...	...	17.4	20.1	12.4	...	5	...	...	80.9
80	9/10	1242	46°58'30"	88°11'45"	18.1	17.4	28.7	15.9	34.7	15.9	34.7	12.4	...	5	...	...	79.9
81	9/10	1337	46°53'30"	88°21'35"	18.3	...	...	...	...	16.9	34.1	12.3	...	5	...	...	80.2
82	9/10	1550	46°53'30"	88°21'35"	18.5	...	...	...	...	16.9	27.4	...	...	...	...	...	...
83	9/11	0815	46°47'38"	88°27'30"	18.2	17.1	16.8	13.7	29.6	13.7	29.6	12.3	...	5	...	...	80.6
84	9/11	1240	46°49'20"	88°27'30"	18.5	...	...	...	...	8.5	50.3	12.3	...	4	...	...	79.2
85	9/11	1351	46°48'20"	88°26'55"	18.6	16.7	24.4	8.4	53.6	8.4	53.6	12.3	...	4	...	...	79.5
86	9/11	1452	46°48'20"	88°26'55"	18.6	17.0	21.3	13.2	25.9	12.8	29.9	...	...	...	...	...	...
87	9/11	1530	46°53'15"	88°21'50"	19.0	16.2	29.6	11.5	36.9	7.6	57.9	12.3	...	5	...	...	80.6
88	9/11	1600	46°56'00"	88°16'30"	18.9	16.1	35.5	11.4	37.5	5.6	64.0	12.5	...	5	...	...	79.5
89	9/11	1630	46°58'15"	88°11'20"	19.5	...	...	...	...	15.6	38.4	12.5	...	5	...	...	79.5
90	9/11	1715	46°58'35"	88°02'05"	18.5	15.4	32.0	5.5	57.0	5.5	57.0	12.5	...	5	...	...	79.9
91	9/11	1745	46°57'40"	87°55'20"	18.5	...	...	...	...	13.8	35.4	12.5	...	5	...	...	80.2

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
92	9/11	1815	46°56'20"	87°48'35"	18.5	15.5	43.3	13.1	47.5	13.1	47.5	12.5	...	5	...	...	80.9
93	9/11	1845	46°55'15"	87°41'50"	17.8	13.3	45.7	6.1	64.0	4.5	88.4	12.4	...	5	...	...	80.6
94	9/11	1913	46°54'20"	87°37'00"	17.8	...	...	...	...	4.5	85.3			(Station 2)			
95	9/11	2000	46°50'00"	87°33'15"	17.8	...	...	...	...	6.1	67.0	...	...	5	...	...	80.9
96	9/11	2031	46°45'40"	87°29'20"	18.4	18.2	7.6	8.7	49.4	8.7	49.4	12.4	...	5	...	...	80.6
97	9/11	2100	46°41'50"	87°26'00"	18.3	18.2	8.2	14.1	32.0	14.1	32.0	12.4	...	5	...	...	79.2
98	9/11	2130	46°37'45"	87°22'30"	18.3	17.5	19.8	11.9	39.0	11.9	39.0	12.4	...	5	...	...	79.9
99	9/11	2157	46°35'00"	87°20'45"	18.4	...	...	...	...	17.6	29.3	12.4	...	5	...	...	80.2
100	9/14	0815	46°32'00"	87°21'10"	16.5	...	...	...	...	16.5	11.0	12.4	...	5	...	...	80.9
101	9/14	0845	46°32'15"	87°14'30"	16.1	...	...	...	...	15.5	42.1	12.4	...	5	...	...	79.9
102	9/14	0915	46°32'35"	87°07'45"	16.4	...	...	...	...	16.0	22.6	12.4	...	5	...	...	79.9
103	9/14	0945	46°33'10"	87°01'15"	16.7	...	...	...	...	16.5	18.9	12.4	...	5	...	...	79.9
104	9/14	1015	46°31'20"	86°55'30"	17.1	...	...	...	...	16.7	21.9	12.4	...	5	...	...	79.5
105	9/14	1524	46°31'20"	86°55'30"	17.4	16.8	34.1	8.5	50.3	7.2	61.0	...	...	5	...	...	80.6
Cruise VIII																	
1	9/27	0830	46°33'20"	87°21'10"	13.6	...	...	...	...	13.6	21.9	12.8	...	...	...	...	80.7
2	9/27	0900	46°37'30"	87°22'10"	14.0	13.6	32.3	12.9	39.9	12.9	39.9	12.8	...	...	...	...	82.2
3	9/27	0930	46°41'10"	87°25'20"	14.1	14.0	32.0	8.7	46.6	8.7	46.6	12.8	...	...	...	...	80.7
4	9/27	1000	46°44'50"	87°28'40"	14.0	13.9	34.1	7.9	61.0	7.9	61.0	12.8	...	...	...	...	80.0
5	9/27	1235	46°56'40"	87°49'30"	13.6	...	...	...	...	13.5	38.7	12.8	...	...	...	...	80.0
6	9/27	1305	46°58'40"	87°55'40"	14.0	13.8	35.7	9.8	40.2	5.8	61.0	12.8	...	...	...	...	80.0
7	9/27	1335	46°59'25"	88°01'05"	13.9	13.7	31.4	7.1	43.2	5.6	61.0	12.8	...	...	...	...	80.7

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
8	9/27	1405	46°59'00"	88°07'40"	14.0	12.5	24.4	8.0	30.2	8.0	30.2	12.8	...	...	...	...	80.0
9	9/27	1435	46°58'40"	88°14'15"	12.8	11.9	30.5	7.2	39.6	4.7	125.6	12.6	...	...	...	...	78.9
10	9/27	1505	46°58'10"	88°20'25"	12.7	11.8	27.4	10.2	28.0	10.2	28.0	12.7	...	...	...	...	79.6
11	9/27	1716	47°03'30"	88°30'00"	14.9	...	...	...	...	14.6	13.7			(Station 10)			
12	9/28	1310	47°39'30"	89°08'00"	7.5	7.5	36.6	5.0	73.1	4.2	167.6	12.7	...	...	...	...	81.1
13	9/28	1340	47°44'00"	89°11'00"	8.0	6.9	45.7	4.7	61.0	3.9	170.7	12.7	...	...	...	...	81.4
14	9/28	1410	47°47'30"	89°13'15"	8.8	6.8	26.5	5.5	30.5	4.0	82.9	12.7	...	...	...	...	79.6
15	9/28	1446	47°48'50"	89°13'55"	9.0	8.6	16.8	5.9	27.4	4.9	61.0			(Station 63)			
16	9/28	1536	47°51'35"	89°14'50"	8.7	...	...	...	...	8.4	14.6	12.7	...	...	...	...	78.6
17	9/29	0948	47°48'50"	89°13'15"	9.0	8.7	22.3	6.2	39.3	6.0	45.7			(Station 63)			
18	9/30	0930	47°46'00"	89°12'45"	8.6	8.3	33.5	4.7	51.8	4.3	97.5	12.6	...	...	...	...	79.7
19	9/30	0950	47°46'00"	89°08'10"	10.4	10.2	30.5	8.2	32.0	5.0	170.7	12.6	...	...	...	...	79.8
20	9/30	1010	47°46'45"	89°03'40"	9.5	9.0	30.5	5.0	51.8	4.0	190.0	12.6	...	...	...	...	80.5
21	9/30	1030	47°48'00"	88°59'30"	10.5	10.4	25.9	6.5	48.8	4.4	189.0	12.6	...	...	...	...	80.2
22	9/30	1050	47°49'30"	88°55'30"	10.6	10.0	30.5	5.3	62.5	4.0	192.0	12.6	...	...	...	...	80.9
23	9/30	1110	47°51'15"	88°51'45"	10.0	10.0	30.5	5.5	70.1	4.5	158.5	12.6	...	...	...	...	79.7
24	9/30	1130	47°54'00"	88°46'40"	9.8	9.7	29.0	5.5	42.7	5.0	85.3	12.6	...	...	...	...	80.5
25	9/30	1548	47°54'40"	87°57'00"	9.5	...	...	...	...	9.4	30.5			(Station 96)			
26	9/30	1659	47°56'40"	88°53'15"	9.5	9.0	29.0	6.4	48.8	6.2	55.2			(Station 97)			
27	10/1	0758	47°56'40"	88°53'15"	9.3	9.1	15.2	6.2	30.2	5.4	50.3			(Station 97)			
28	10/1	0845	47°51'10"	88°54'05"	...	...	...	...	...	...	...	12.6	...	...	...	...	79.5
29	10/1	0915	47°46'40"	88°55'20"	10.2	10.1	24.4	6.0	44.2	4.3	164.6	12.6	...	...	...	...	80.5
30	10/1	0945	47°42'10"	88°56'45"	9.7	9.5	25.9	4.5	73.2	4.1	167.6	12.6	...	...	...	...	80.6

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion: Upper limits: Temperature (°C.)	Metalimnion: Upper limits: Depth (meters)	Metalimnion: Lower limits: Temperature (°C.)	Metalimnion: Lower limits: Depth (meters)	Deepest reading: Temperature (°C.)	Deepest reading: Depth (meters)						
31	10/1	1015	47°38'00"	88°58'30"	9.0	8.0	30.5	5.5	48.8	4.0	167.6	12.6	...	...	...	...	79.9
32	10/1	1031	47°35'30"	88°59'20"	8.4	8.2	39.6	5.0	64.0	4.0	207.3			(Station 12)			
33	10/1	1145	47°32'45"	88°55'00"	8.3	7.8	8.2	5.5	10.1	3.9	106.7	12.6	...	...	...	...	79.9
34	10/1	1215	47°27'30"	88°51'30"	9.5	9.2	30.5	6.0	51.8	4.2	167.6	12.6	...	...	...	...	81.4
35	10/1	1245	47°24'00"	88°47'30"	10.0	9.6	21.3	4.5	64.0	4.2	155.4	12.6	...	...	...	...	78.0
36	10/1	1306	47°21'10"	88°44'30"	10.8	10.3	29.0	4.7	61.0	4.2	164.6			(Station 11)			
37	10/1	1400	47°17'25"	88°41'00"	12.8	10.0	43.9	5.7	54.9	4.7	78.9	12.6	...	...	...	...	78.4
38	10/2	0945	46°57'10"	88°24'50"	12.4	...	...	...	...	12.4	12.8	12.6	...	...	...	...	79.0
39	10/2	1006	46°54'40"	88°21'40"	12.7	12.5	29.3	6.1	110.9	6.1	110.9	12.6	...	...	...	...	79.4
40	10/2	1136	46°53'30"	88°21'35"	12.8	...	...	...	...	12.6	14.9			(Station 59)			
41	10/2	1435	46°48'21"	88°26'55"	13.0	...	...	...	...	10.3	53.3			(Station 9)			
42	10/2	1558	46°49'20"	88°27'30"	12.2	12.0	13.7	9.8	52.4	9.8	52.4			(Station 61)			
43	10/3	0836	46°49'20"	88°27'30"	10.9	...	...	...	...	9.0	44.8			(Station 61)			
44	10/3	1000	46°53'30"	88°25'20"	13.0	12.5	21.3	10.2	30.5	9.6	56.4	12.7	...	...	...	...	79.5
45	10/3	1030	46°57'50"	88°23'00"	12.4	11.5	33.8	7.4	57.6	7.4	57.6	12.7	...	...	...	...	79.5
46	10/3	1100	47°02'10"	88°20'40"	12.5	...	...	...	...	10.6	30.8	12.7	...	...	...	...	79.2
47	10/3	1400	47°03'25"	88°19'40"	12.4	12.3	10.7	11.5	15.8	11.4	19.8			(Station 4)			
48	10/3	1451	46°59'40"	88°22'10"	12.4	12.1	10.7	10.6	27.4	10.6	27.4	12.7	...	...	...	...	79.9
49	10/4	0823	46°58'10"	88°22'30"	11.8	11.6	34.4	7.4	55.8	7.4	55.8	12.7	...	...	...	...	79.5
50	10/4	0840	46°58'12"	88°18'35"	12.3	12.2	38.4	10.4	57.3	10.4	57.3	12.7	...	...	...	...	79.9
51	10/4	0900	46°58'20"	88°14'00"	12.2	11.7	43.3	6.6	79.2	5.0	128.0	12.7	...	...	...	...	78.5
52	10/4	0921	46°58'30"	88°09'15"	12.7	...	...	...	...	12.7	24.7	12.7	...	...	...	...	78.8
53	10/4	0940	46°58'40"	88°04'55"	12.5	...	...	...	...	12.4	22.9	12.7	...	...	...	...	79.2

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
54	10/4	1000	46°58'50"	88°00'35"	12.5	12.3	27.4	9.7	56.0	9.7	56.0	12.7	...	...	...	...	81.0
55	10/4	1020	46°58'10"	87°56'10"	12.5	12.3	33.5	9.9	54.6	9.9	54.6	12.7	...	...	...	...	78.1
56	10/4	1040	46°57'10"	87°51'15"	12.4	...	...	...	...	12.2	24.0	12.7	...	...	...	...	79.9
57	10/4	1100	46°56'20"	87°46'25"	12.5	12.3	29.0	11.3	42.7	11.0	54.3	12.7	...	...	...	...	79.5
58	10/4	1120	46°55'25"	87°42'10"	12.4	12.0	38.1	9.8	46.3	8.8	56.4	12.7	...	...	...	...	79.9
59	10/4	1152	46°54'20"	87°37'00"	12.2	12.1	27.4	8.3	44.2	6.0	88.4	(Station 2)					
60	10/4	1250	46°51'45"	87°34'45"	12.4	12.2	38.7	8.6	56.4	8.6	56.4	12.8	...	...	...	...	79.2
61	10/4	1310	46°48'50"	87°32'15"	12.4	11.1	51.2	8.9	55.2	8.9	55.2	12.8	...	...	...	...	79.2
62	10/4	1330	46°45'45"	87°30'25"	12.4	...	...	...	...	12.0	38.7	12.8	...	...	...	...	79.5
63	10/4	1351	46°42'35"	87°28'30"	12.4	...	...	...	...	12.1	38.1	12.8	...	...	...	...	79.2
64	10/4	1410	46°39'50"	87°27'00"	12.8	...	...	...	...	12.2	29.3	12.8	...	...	...	...	79.9
65	10/4	1427	46°37'25"	87°25'40"	12.8	...	...	...	...	12.5	13.1	(Station 43)					
66	10/4	1510	46°34'45"	87°22'10"	13.0	...	...	...	...	12.9	21.3	12.8	...	...	...	...	78.8
67	10/5	0820	46°32'00"	87°21'10"	13.1	...	...	...	...	13.1	12.8	12.8	...	...	...	...	79.5
68	10/5	0840	46°32'10"	87°13'50"	13.3	13.2	29.0	12.6	34.7	12.6	34.7	12.8	...	...	...	...	78.1
69	10/5	0900	46°32'20"	87°12'40"	13.5	13.5	38.1	9.9	53.0	9.9	53.0	12.7	...	...	...	...	79.2
70	10/5	0920	46°32'30"	87°08'10"	13.5	...	...	...	...	13.4	30.7	12.7	...	...	...	...	79.9
71	10/5	0940	46°32'40"	87°04'05"	13.5	...	...	...	...	13.4	25.0	12.7	...	...	...	...	79.5
72	10/5	1000	46°32'50"	87°00'05"	13.4	...	...	...	...	13.3	10.4	12.7	...	...	...	...	81.4
Cruise IX																	
1	10/14	1030	46°34'45"	87°22'15"	11.2	11.1	7.3	8.1	19.5	8.1	19.5	12.9	1.15	...	...	23	...
2	10/14	1100	46°38'40"	87°24'45"	11.3	10.9	26.2	9.8	30.9	9.5	35.1	12.9	1.20	...	...	21	...

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18}x10^6$)
					Surface (°C.)	Metalimnion: Upper limits: Temperature (°C.)	Metalimnion: Upper limits: Depth (meters)	Metalimnion: Lower limits: Temperature (°C.)	Metalimnion: Lower limits: Depth (meters)	Deepest reading: Temperature (°C.)	Deepest reading: Depth (meters)						
3	10/14	1130	46°42'45"	87°27'45"	11.2	10.8	38.4	8.3	51.8	8.3	51.8	12.9	...	...	...	...	78.9
4	10/14	1200	46°46'20"	87°30'45"	11.6	...	...	...	...	9.7	44.5	12.9	...	...	...	...	78.6
5	10/14	1229	46°50'15"	87°33'45"	11.6	9.4	49.1	7.2	57.3	6.7	68.6	12.9	...	...	...	...	79.3
6	10/14	1300	46°54'20"	87°37'00"	11.4	9.9	51.8	4.9	85.3	4.9	98.5			(Station 2)			
7	10/14	1350	46°55'30"	87°42'50"	11.6	...	...	...	...	10.4	47.9	12.8	...	...	...	...	78.6
8	10/14	1420	46°56'45"	87°49'00"	11.6	...	...	...	...	11.3	38.4	12.8	...	...	...	...	78.2
9	10/14	1450	46°57'50"	87°55'10"	12.0	...	...	...	...	10.5	43.0	12.6	...	...	...	...	78.6
10	10/14	1510	46°58'40"	87°59'15"	12.0	10.9	47.9	8.0	52.7	7.7	58.5	12.6	...	...	...	...	78.9
11	10/14	1550	46°58'25"	88°07'45"	12.1	...	...	...	...	10.5	42.7	12.6	...	...	...	49	82.4
12	10/14	1620	46°57'10"	88°13'50"	11.9	11.1	38.1	8.3	45.7	6.7	68.6	12.6	...	...	...	...	79.3
13	10/14	1650	46°54'35"	88°19'20"	12.2	11.1	28.3	5.4	67.1	5.4	67.1	12.6	...	...	...	...	80.3
14	10/14	1720	46°51'45"	88°24'25"	10.4	9.8	11.0	3.6	27.4	3.6	27.4	12.6	...	...	...	...	80.7
15	10/14	1750	46°47'35"	88°27'20"	11.4	10.2	15.2	7.8	20.7	6.5	29.9	12.6	1.10	...	...	46	...
16	10/15	1044	46°49'20"	88°27'30"	11.4	11.2	21.6	6.5	42.4	6.0	52.7			(Station 61)			
17	10/15	1613	46°48'20"	88°26'55"	11.9	11.1	21.6	8.0	25.9	6.3	53.3			(Station 9)			
18	10/16	0836	46°48'20"	88°26'55"	11.6	11.0	24.7	6.7	53.0	6.7	53.0			(Station 9)			
19	10/16	0945	46°54'35"	88°19'20"	11.4	11.0	25.9	8.7	31.4	6.0	60.0	...	...	...	...	...	...
20	10/16	1015	46°57'10"	88°13'50"	11.3	11.1	26.2	7.6	30.8	6.0	60.7	12.9	...	...	...	...	80.0
21	10/16	1100	46°58'45"	88°04'25"	11.4	...	...	...	...	11.1	27.7	12.9	...	...	...	...	82.2
22	10/16	1130	46°58'15"	87°57'55"	11.4	10.4	39.6	6.6	62.5	6.6	62.5	12.9	...	...	...	...	80.7
23	10/16	1200	46°56'10"	87°52'10"	11.5	...	...	...	...	11.1	17.4	12.9	...	...	...	...	80.7
24	10/16	1230	46°53'55"	87°46'15"	12.0	...	...	...	...	11.1	14.9	12.9	...	...	...	...	78.6
25	10/16	1300	46°52'00"	87°40'30"	12.0	...	...	...	...	11.1	14.9	12.9	1.10	...	...	22	...

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples]
(cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
26	10/16	1330	46°48'45"	87°36'10"	12.0	...	...	...	...	10.9	18.3	12.9	...	...	...	...	79.6
27	10/16	1400	46°44'45"	87°32'40"	12.0	12.0	0	10.6	2.7	10.4	23.8	12.9	...	...	...	...	80.7
28	10/16	1430	46°41'05"	87°29'00"	12.0	12.0	0	10.8	2.4	10.6	12.2	12.9	...	...	...	...	80.3
29	10/16	1654	46°37'25"	87°25'40"	12.6	12.6	0	11.4	1.5	10.9	16.8			(Station 43)			
30	10/17	1108	46°37'25"	87°25'40"	11.4	...	...	...	...	11.3	25.3			(Station 43)			
31	10/17	1328	46°37'25"	87°25'40"	11.4	...	...	...	...	11.3	15.2			(Station 43)			
32	10/17	1457	46°41'15"	87°29'00"	11.7	...	...	...	...	11.0	19.8			(Station 98)			
33	10/18	1032	46°37'25"	87°25'40"	11.1	...	...	...	...	11.1	14.3			(Station 43)			
34	10/18	1147	46°41'15"	87°29'00"	11.2	...	...	...	...	10.7	19.8			(Station 98)			
35	10/18	1303	46°43'15"	87°31'40"	11.3	11.1	13.4	9.9	16.8	9.8	18.9			(Station 99)			
36	10/19	1407	46°37'25"	87°25'40"	12.5	...	...	...	...	11.2	13.7	...	...	...	...	...	...
37	10/19	1605	46°43'15"	87°31'40"	12.0	...	...	...	...	11.1	16.5	...	...	...	...	...	...
38	10/20	0945	46°37'25"	87°25'40"	11.6	...	...	...	...	11.2	13.7	...	...	...	...	...	...
39	10/20	1205	46°43'15"	87°31'40"	11.7	...	...	...	...	11.1	17.1	...	...	...	...	...	...
40	10/20	1245	46°40'40"	87°23'40"	11.6	11.1	23.8	8.4	43.3	7.5	61.0	12.7	...	...	...	...	80.0
41	10/20	1317	46°38'30"	87°17'15"	11.7	10.0	36.6	5.5	78.9	5.5	78.9	12.7	...	...	...	...	80.0
42	10/20	1345	46°36'35"	87°11'50"	12.5	10.6	31.1	9.4	33.5	6.6	65.8	12.7	...	...	...	...	79.6
43	10/20	1415	46°34'35"	87°05'50"	12.6	10.9	34.4	7.3	56.1	7.3	56.1	12.8	...	...	...	...	81.1
44	10/20	1542	46°32'30"	87°59'20"	12.6	...	...	...	...	11.7	13.4			(Station 100)			
45	10/20	1615	46°32'35"	87°05'10"	12.7	...	...	...	...	11.3	24.7	12.8	...	...	...	...	81.4
46	10/20	1645	46°32'20"	87°11'50"	12.7	11.2	28.0	9.6	38.1	9.6	38.1	12.8	...	...	...	...	79.3
47	10/20	1715	46°32'05"	87°18'10"	12.7	...	...	...	...	10.2	29.3	12.8	...	...	...	...	79.3
48	10/21	0830	46°32'00"	87°20'40"	12.0	...	...	...	...	11.6	15.2	12.8	...	...	...	...	80.7

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples]
(cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion: Upper limits Temperature (°C.)	Metalimnion: Upper limits Depth (meters)	Metalimnion: Lower limits Temperature (°C.)	Metalimnion: Lower limits Depth (meters)	Deepest reading Temperature (°C.)	Deepest reading Depth (meters)						
49	10/21	0900	46°32'15"	87°14'00"	11.9	10.8	29.6	7.3	48.8	7.3	48.8	12.8	...	...	...	...	80.0
50	10/21	0930	46°32'30"	87°07'25"	11.7	...	...	...	...	10.9	30.5	12.8	...	...	...	...	80.7
51	10/21	1515	46°31'20"	86°55'30"	12.7	12.1	16.8	6.6	61.0	6.6	61.0			(Station 1)			
52	10/21	1625	46°31'20"	86°55'30"	12.8	11.6	20.1	8.8	29.3	8.8	29.3			(Station 1)			
53	10/22	0845	46°32'05"	87°18'35"	12.2	...	...	...	...	11.1	26.8	12.8	...	...	...	...	79.6
54	10/22	0915	46°32'20"	87°12'05"	12.2	10.5	27.7	7.8	38.1	7.8	38.1	...	...	...	...	...	...
55	10/22	0945	46°32'35"	87°05'35"	11.9	...	...	...	...	11.7	15.8	...	...	...	...	...	...
56	10/22	1015	46°32'50"	86°59'00"	12.0	11.7	15.8	10.2	29.0	10.2	29.0	13.0	...	...	...	...	80.3
57	10/23	0830	46°32'03"	87°19'35"	12.2	...	...	...	...	11.4	21.9	13.0	...	...	...	...	80.3
58	10/23	0900	46°32'20"	87°13'20"	12.0	10.6	31.1	8.2	38.1	6.8	52.7	13.0	...	...	...	...	80.7
59	10/23	0930	46°32'35"	87°06'45"	11.9	11.6	16.2	10.1	30.8	10.1	30.8	13.0	...	...	...	...	80.3
60	10/25	0602	46°37'40"	86°58'00"	10.6	10.4	42.7	5.0	79.2	4.9	111.9	13.0	1.10	...	...	23	...
61	10/25	0630	46°38'20"	86°51'55"	10.6	10.5	21.9	5.0	57.3	5.0	80.2	13.0	...	...	...	...	79.3
62	10/25	0701	46°39'05"	86°45'05"	11.1	...	...	...	...	8.5	56.3	13.0	...	...	...	...	79.3
63	10/25	0730	46°40'20"	86°38'50"	11.4	11.4	27.4	4.6	73.2	4.1	114.0	13.0	1.30	...	...	20	...
64	10/25	0800	46°41'35"	86°32'35"	11.2	11.1	48.2	5.9	85.3	4.6	126.5	13.0	...	...	...	...	80.7
65	10/25	0830	46°42'55"	86°26'20"	10.9	10.7	33.2	6.2	58.5	4.5	97.8	13.0	...	...	...	...	80.0
66	10/25	0900	46°43'25"	86°20'00"	11.6	10.8	36.6	6.6	61.0	6.6	61.0	12.4	1.30	...	...	...	...
67	10/25	0930	46°43'25"	86°13'15"	11.2	10.8	30.2	5.9	54.9	5.1	80.8	12.4	...	...	...	...	80.7
68	10/25	1000	46°43'25"	86°06'40"	11.3	...	...	...	...	10.1	27.4	12.4	...	...	...	...	79.3
69	10/25	1030	46°43'25"	85°59'55"	11.5	...	...	...	...	11.0	16.2	12.4	...	...	...	20	...
70	10/25	1100	46°43'45"	85°53'10"	11.5	11.5	10.7	10.1	13.1	10.1	13.1	12.4	...	...	...	...	79.3
71	10/25	1130	46°43'50"	85°46'25"	11.3	11.2	14.0	8.6	18.9	8.6	18.9	12.4	...	...	...	...	79.6

Table 7.--Observations at bathythermograph casts, 1953 (Cisco). [Chemical data are for surface water samples] (cont'd)

Cruise (roman) and bathythermograph (arabic) number	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Ca (ppm)	Na (ppm)	SiO_2 (ppm)	Total alkalinity (ppm)	Total P (ppb)	Specific conductance ($K_{18} \times 10^6$)
					Surface (°C.)	Metalimnion				Deepest reading							
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
72	10/25	1200	46°44'00"	85°39'40"	11.6	10.9	17.7	6.6	39.6	4.9	86.0	12.4	1.30	...	...	40	...
73	10/25	1230	46°44'45"	85°33'05"	11.6	11.4	30.2	6.9	48.8	4.8	92.4	...	...	...	...	...	...
74	10/25	1300	46°45'40"	85°26'35"	11.1	11.0	33.8	8.9	39.6	8.9	39.6	12.4	...	...	...	...	78.9
75	10/25	1330	46°46'35"	85°20'00"	11.6	...	...	...	...	10.6	21.6	12.4	1.15	...	...	29	...
76	10/25	1400	46°47'15"	85°15'00"	11.6	...	...	...	...	11.4	12.2	12.4	...	...	...	...	78.9
77	10/25	1430	46°47'20"	85°08'55"	11.2	...	...	...	...	11.1	12.2	12.2	1.25	...	...	...	79.3
78	10/25	1504	46°47'25"	85°01'25"	11.4	...	...	...	...	11.4	11.6	12.2	1.10	...	...	23	...
79	10/25	1530	46°47'50"	84°55'20"	11.4	11.3	37.2	9.4	59.7	9.4	59.7	12.2	...	...	...	...	79.6
80	10/25	1600	46°43'55"	84°51'50"	12.9	12.8	33.5	10.0	61.0	10.0	61.0	12.2	1.10	...	...	23	...
81	10/25	1634	46°39'35"	84°47'20"	13.0	...	...	...	...	12.3	49.1	12.2	...	...	...	...	79.1
82	10/25	1700	46°35'50"	84°44'00"	12.8	12.3	36.6	4.9	103.6	4.9	103.6	12.2	1.25	...	...	23	...
83	10/25	1730	46°32'25"	84°39'40"	12.6	...	...	...	...	12.5	24.4	12.2	...	...	...	...	79.4
84	10/25	1800	46°29'00"	84°35'10"	12.6	...	...	...	...	12.6	9.4	12.2	1.15	...	...	22	...

Table 8.--Drift cards released in Lake Superior in 1953 and the number and percentage recovered for each release

Date	Release point	Number of cards		Percentage returned
		Released	Recovered	
July 3	Station 48	500	29	5.8
July 4	Station 49	500	31	6.2
July 4	BT cast IV-34	1,000	65	6.5
July 6	Station 55	1,000	57	5.7
July 7	Station 11	1,000	127	12.7
July 8	Station 4	470	54	11.5
Total		4,470	363	8.1

Table 9.--Recoveries from 500 drift cards released from the Cisco on July 3, 1953, at station 48, latitude 47° 22' 00", longitude 87° 39' 35"

Date	Latitude (North)	Longitude (West)	Days adrift	Miles covered	Miles per day
7/12/53	47° 24'	87° 46'	9	5.2	0.58
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
7/19/53	47° 24'	87° 44'	16	3.9	0.24
7/24/53	47° 25'	87° 38'	21	4.0	0.19
7/31/53	47° 24'	87° 44'	28	3.9	0.14
"	" "	" "	"	"	"
8/1/53	47° 25'	87° 36'	29	4.2	0.14
8/5/53	47° 24'	87° 46'	33	5.2	0.16
"	" "	" "	"	"	"
"	" "	" "	"	"	"
8/10/53	47° 26'	87° 36'	38	6.5	0.17
8/11/53	47° 25'	87° 37'	39	4.3	0.11
8/18/53	47° 25'	87° 38'	46	4.1	0.09
8/19/53	47° 24'	87° 44'	47	3.9	0.08
8/26/53	47° 26'	87° 36'	54	6.5	0.12
9/6/53	47° 24'	87° 46'	65	5.2	0.08
9/6/53	47° 56'	84° 51'	65	137.4	2.11
9/7/53	47° 57'	84° 54'	66	135.6	2.05
9/10/53	48° 38'	86° 21'	69	107.7	1.56
10/17/53	48° 44'	86° 38'	106	106.2	1.00
10/25/53	48° 38'	86° 21'	114	107.7	0.94
5/14/54	47° 24'	87° 44'	...	3.9	...
5/14/54	48° 33'	86° 16'	...	104.0	...
7/9/54	48° 33'	86° 16'	...	104.0	...
9/15/54	...	...	...	...	...

Table 10.--Recoveries from 500 drift cards released from the Cisco on July 4, 1953, at station 49, latitude 47° 29' 30", longitude 87° 47' 10"

Date	Latitude (North)	Longitude (West)	Days adrift	Miles covered	Miles per day
8/28/53	48° 39'	86° 21'	55	103.7	1.89
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	48° 34'	86° 17'	"	102.0	1.85
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	48° 45'	86° 31'	"	104.1	1.89
8/29/53	48° 34'	86° 17'	56	102.0	1.82
"	48° 39'	86° 21'	"	103.7	1.85
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
8/30/53	" "	" "	57	"	1.82
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
9/1/53	48° 06'	86° 02'	59	91.3	1.55
9/2/53	48° 36'	86° 18'	60	102.0	1.70
9/4/53	" "	" "	62	"	1.65
"	" "	" "	"	"	"
9/5/53	48° 39'	86° 21'	63	103.7	1.65
"	48° 52'	87° 39'	"	96.4	1.53
11/17/53	48° 42'	86° 24'	136	105.2	0.77
"	" "	" "	"	"	"
4/17/56	48° 24'	86° 12'	...	97.0	...

Table 11.--Recoveries from 1,000 drift cards released from the Cisco on July 4, 1953, at BT IV-34, latitude 48° 02' 20", longitude 88° 30' 00"

Date	Latitude (North)	Longitude (West)	Days adrift	Miles covered	Miles per day
8/29/53	48° 37'	87° 00'	56	81.5	1.46
"	" "	" "	"	"	"
8/30/53	48° 46'	86° 55'	57	90.4	1.59
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
8/31/53	48° 37'	87° 00'	58	81.5	1.41
9/1/53	48° 47'	87° 17'	59	77.7	1.32
9/2/53	48° 47'	87° 11'	60	81.1	1.35
9/3/53	48° 50'	87° 26'	61	78.1	1.28
"	48° 37'	87° 00'	"	81.5	1.34
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
9/4/53	48° 50'	87° 26'	62	78.1	1.26
"	" "	" "	"	"	"
9/5/53	48° 47'	87° 11'	63	81.1	1.29
"	48° 54'	87° 40'	63	79.2	1.26
9/6/53	48° 54'	87° 47'	64	74.6	1.17
"	" "	" "	"	"	"
"	48° 37'	87° 00'	"	81.5	1.27
"	" "	" "	"	"	"
"	48° 46'	86° 55'	"	90.4	1.41
9/11/53	48° 48'	87° 29'	69	75.2	1.09
9/14/53	48° 44'	87° 29'	72	69.1	0.96
9/17/53	48° 45'	87° 34'	75	67.1	0.89
9/20/53	48° 46'	87° 35'	78	68.9	0.88
9/21/53	48° 58'	88° 01'	79	71.5	0.91
"	48° 45'	87° 34'	"	67.1	0.85
"	" "	" "	"	"	"
10/18/53	48° 45'	87° 23'	106	73.0	0.69
"	" "	" "	"	"	"
"	48° 54'	87° 40'	"	79.2	0.75
10/30/53	48° 36'	88° 18'	118	43.5	0.37

Table 11.--Recoveries from 1,000 drift cards released from the Cisco on July 4, 1953, at BT IV-34, latitude 48° 02' 20", longitude 88° 30' 00" (cont'd)

Date	Latitude (North)	Longitude (West)	Days adrift	Miles covered	Miles per day
...	48° 50'	87° 28'	...	75.0	...
4/29/54	48° 50'	87° 30'	...	73.7	...
5/14/54	" "	" "	...	"	...
6/5/54	48° 48'	87° 29'	...	73.6	...
7/19/54	48° 08'	88° 30'	...	9.1	...
7/25/54	48° 45'	87° 33'	...	67.2	...
"	48° 44'	87° 41'	...	62.8	...
8/2/54	48° 40'	87° 03'	...	81.1	...
8/4/54	48° 46'	86° 57'	...	88.5	...
8/5/54	48° 45'	86° 53'	...	90.2	...
8/11/54	48° 37'	86° 59'	...	82.9	...
8/12/54	48° 47'	87° 10'	...	81.5	...
8/20/54	48° 45'	87° 11'	...	80.1	...
8/25/54	48° 58'	88° 01'	...	71.5	...
9/5/54	48° 46'	87° 04'	...	84.6	...
6/28/55	48° 50'	87° 30'	...	73.7	...
8/17/55	48° 46'	87° 09'	...	82.0	...
9/11/55	48° 46'	86° 54'	...	90.8	...
9/15/55	48° 41'	87° 04'	...	81.0	...
4/29/56	48° 56'	88° 02'	...	71.1	...
6/7/56	48° 41'	87° 01'	...	82.5	...
7/5/56	48° 44'	87° 40'	...	63.2	...
8/24/56	48° 44'	87° 37'	...	65.6	...

Table 12.--Recoveries from 1,000 drift cards released from the Cisco on July 6, 1953, at station 55, latitude 48° 04' 20", longitude 88° 56' 20"

Date	Latitude (North)	Longitude (West)	Days adrift	Miles covered	Miles per day
7/15/53	48° 13'	88° 21'	9	28.7	3.19
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
7/18/53	48° 03'	88° 49'	12	5.0	0.42
"	48° 05'	88° 46'	"	8.1	0.68
7/26/53	48° 09'	88° 28'	20	31.2	1.56
7/30/53	48° 09'	88° 28'	24	31.2	1.30
8/5/53	48° 21'	88° 38'	30	23.9	0.80
8/8/53	48° 21'	88° 38'	33	23.9	0.72
8/9/53	48° 04'	89° 24'	34	22.1	0.65
8/12/53	48° 26'	88° 34'	37	30.6	0.83
"	" "	" "	"	"	"
8/13/53	48° 09'	88° 36'	38	16.2	0.43
8/14/53	47° 55'	88° 59'	39	60.1	1.54
8/15/53	48° 28'	88° 24'	40	37.7	0.94
8/16/53	48° 07'	88° 41'	41	12.3	0.30
8/17/53	48° 28'	88° 24'	42	37.7	0.90
8/18/53	48° 06'	88° 35'	43	37.7	0.88
"	" "	" "	"	"	"
"	47° 52'	89° 55'	"	48.2	1.12
8/20/53	48° 09'	88° 36'	45	16.2	0.36
"	" "	" "	"	"	"
"	" "	" "	"	"	"
8/20/53	48° 39'	88° 03'	45	57.3	1.27
8/24/53	47° 59'	89° 37'	49	32.7	0.67
8/29/53	48° 39'	88° 03'	54	57.3	1.06
8/30/53	48° 09'	88° 28'	55	31.2	0.57
"	48° 46'	86° 56'	"	103.4	1.88
"	" "	" "	"	"	"
9/6/53	48° 36'	88° 10'	62	51.6	0.83
"	" "	" "	"	"	"
9/8/53	48° 09'	88° 28'	64	31.2	0.49

Table 12.--Recoveries from 1,000 drift cards released from the Cisco on July 6, 1953, at station 55, latitude 48° 04' 20", longitude 88° 56' 20" (cont'd)

Date	Latitude (North)	Longitude (West)	Days adrift	Miles covered	Miles per day
9/8/53	48° 38'	87° 03'	64	95.5	1.49
9/16/53	48° 09'	88° 36'	72	16.2	0.23
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
11/17/53	48° 26'	88° 28'	134	32.8	0.24
6/13/54	48° 24'	88° 34'	...	28.9	...
"	" "	" "	...	"	...
7/11/54	48° 10'	88° 27'	...	28.5	...
9/5/54	48° 24'	88° 34'	...	28.9	...
7/23/55	47° 59'	89° 38'	...	33.0	...
7/5/57	48° 08'	88° 39'	...	14.3	...

Table 13.--Recoveries from 1,000 drift cards released from the Cisco on July 7, 1953, at station 11, latitude 47° 21' 10", longitude 88° 44' 30"

Date	Latitude (North)	Longitude (West)	Days adrift	Miles covered	Miles per day
8/29/53	48° 45'	86° 32'	53	141.2	2.66
8/30/53	48° 46'	86° 53'	54	129.2	2.39
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	48° 48'	86° 42'	"	137.2	2.54
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	48° 45'	86° 38'	"	137.7	2.55
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	48° 46'	87° 07'	"	123.3	2.28
"	" "	" "	"	"	"
"	48° 46'	87° 09'	"	122.2	2.26
"	48° 44'	86° 23'	"	145.0	2.69
"	" "	" "	"	"	"
"	48° 47'	86° 47'	"	133.6	2.47

Table 13.--Recoveries from 1,000 drift cards released from the Cisco on July 7, 1953, at station 11, latitude 47° 21' 10", longitude 88° 44' 30" (cont'd)

Date	Latitude (North)	Longitude (West)	Days adrift	Miles covered	Miles per day
8/31/53	48° 47'	86° 58'	55	129.0	2.35
"	48° 45'	86° 38'	"	137.7	2.50
"	48° 39'	86° 19'	"	144.2	2.62
"	48° 46'	87° 09'	"	122.2	2.22
9/1/53	48° 47'	86° 58'	56	129.0	2.30
"	48° 47'	86° 38'	"	138.7	2.48
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	48° 47'	86° 47'	"	133.6	2.39
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	48° 50'	87° 30'	"	117.9	2.10
"	...	...	"	...	...
9/2/53	48° 44'	86° 23'	57	145.0	2.54
"	48° 46'	86° 53'	"	129.2	2.27
9/3/53	48° 47'	86° 58'	58	129.0	2.22
9/4/53	48° 48'	86° 42'	59	137.2	2.33
"	" "	" "	"	"	"
"	" "	" "	"	"	"
9/5/53	48° 46'	87° 05'	60	124.2	2.07
9/6/53	48° 47'	86° 58'	61	129.0	2.11
"	48° 48'	87° 24'	"	118.2	1.94
"	48° 55'	87° 47'	"	125.1	2.05
"	48° 46'	87° 15'	"	119.0	1.95
"	48° 45'	86° 38'	"	137.7	2.26
9/7/53	48° 48'	86° 42'	62	137.2	2.21
"	" "	" "	"	"	"
"	48° 47'	86° 58'	"	129.0	2.08
9/10/53	" "	" "	65	129.0	1.98
"	48° 48'	86° 42'	"	137.2	2.11
9/11/53	48° 46'	86° 53'	66	129.2	1.96
"	48° 48'	86° 42'	"	137.2	2.08
"	48° 47'	86° 38'	"	138.7	2.10
"	48° 46'	86° 26'	"	145.3	2.20
9/13/53	48° 46'	86° 53'	68	129.2	1.90
9/14/53	48° 46'	87° 05'	69	124.2	1.80
"	" "	" "	"	"	"
"	48° 48'	86° 42'	"	137.2	1.99
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"

Table 13.--Recoveries from 1,000 drift cards released from the Cisco on July 7, 1953, at station 11, latitude 47° 21' 10", longitude 88° 44' 30" (cont'd)

Date	Latitude (North)	Longitude (West)	Days adrift	Miles covered	Miles per day
9/14/53	48° 48'	86° 42'	69	137.2	1.99
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
9/15/53	" "	" "	70	"	1.96
"	" "	" "	"	"	"
9/19/53	48° 47'	86° 47'	74	133.6	1.81
9/21/53	48° 46'	86° 53'	76	129.2	1.70
"	" "	" "	"	"	"
"	48° 48'	86° 42'	"	137.2	1.81
"	" "	" "	"	"	"
9/23/53	48° 47'	86° 58'	78	129.0	1.65
9/26/53	48° 47'	86° 47'	81	133.6	1.65
9/27/53	48° 47'	87° 10'	82	123.1	1.50
9/30/53	48° 45'	86° 38'	85	137.7	1.62
"	" "	" "	"	"	"
"	48° 48'	86° 42'	"	137.2	1.61
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
10/2/53	48° 48'	86° 42'	87	137.2	1.58
"	" "	" "	"	"	"
"	" "	" "	"	"	"
10/7/53	48° 47'	86° 47'	92	133.6	1.45
10/12/53	" "	" "	97	"	1.38
10/18/53	48° 45'	87° 24'	103	115.2	1.12
10/28/53	48° 48'	87° 24'	113	118.2	1.05
10/30/53	48° 45'	86° 38'	115	137.7	1.20
10/31/53	48° 48'	86° 42'	116	137.2	1.18
11/18/53	48° 48'	86° 42'	134	137.2	1.02
11/29/53	48° 46'	87° 15'	145	119.0	0.82
5/1/54	48° 36'	86° 18'	...	142.5	...
5/2/54	48° 47'	87° 10'	...	123.1	...
5/15/54	48° 47'	86° 58'	...	129.0	...
7/1/54	48° 46'	87° 09'	...	123.0	...
7/7/54	48° 47'	86° 58'	...	129.0	...
9/5/54	48° 54'	87° 43'	...	118.4	...
9/17/54	48° 46'	86° 28'	...	144.5	...
6/3/55	48° 47'	86° 58'	...	129.0	...

Table 14.--Recoveries from 470 drift cards released from the Cisco on July 8, 1953, at station 4, latitude 47° 03' 25", longitude 88° 19' 40"

Date	Latitude (North)	Longitude (West)	Days adrift	Miles covered	Miles per day
7/18/53	46° 57'	88° 27'	10	8.1	0.81
7/23/53	46° 53'	87° 51'	15	26.7	1.78
"	46° 58'	88° 09'	15	11.1	0.74
7/24/53	46° 55'	88° 02'	16	18.0	1.13
7/26/53	46° 52'	87° 46'	18	30.4	1.69
"	46° 50'	87° 44'	18	34.9	1.94
7/27/53	46° 53'	87° 51'	19	26.7	1.41
"	" "	" "	"	"	"
"	" "	" "	"	"	"
7/29/53	46° 58'	88° 09'	21	11.1	0.53
"	46° 53'	87° 51'	21	26.7	1.27
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	47° 05'	88° 20'	"	2.0	0.10
7/30/53	46° 50'	87° 44'	22	34.9	1.59
8/1/53	46° 57'	88° 11'	24	10.4	0.43
8/4/53	47° 12'	88° 14'	27	13.1	0.49
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
"	" "	" "	"	"	"
8/5/53	46° 58'	88° 09'	28	11.1	0.40
8/8/53	47° 12'	88° 14'	31	13.1	0.42
"	" "	" "	"	"	"
"	" "	" "	"	"	"
8/9/53	47° 11'	88° 15'	32	12.9	0.40
"	47° 12'	88° 14'	"	13.1	0.41
8/10/53	47° 13'	88° 11'	33	14.1	0.43
"	" "	" "	"	"	"
8/12/53	47° 12'	88° 14'	35	13.1	0.37
8/13/53	46° 57'	87° 59'	36	18.8	0.52
"	" "	" "	"	"	"
8/14/53	47° 12'	88° 14'	37	13.1	0.35
"	" "	" "	"	"	"
"	47° 13'	88° 09'	"	16.0	0.43
8/16/53	46° 57'	87° 59'	39	18.8	0.48
"	47° 12'	88° 14'	"	13.1	0.34

Table 14.--Recoveries from 470 drift cards released from the Cisco on July 8, 1953, at station 4, latitude 47° 03' 25", longitude 88° 19' 40" (cont'd)

Date	Latitude (North)	Longitude (West)	Days adrift	Miles covered	Miles per day
8/22/53	46° 34'	87° 23'	45	59.9	1.33
8/23/53	47° 03'	88° 21'	46	1.0	0.02
8/24/53	47° 13'	88° 11'	47	14.1	0.30
"	46° 34'	87° 23'	"	59.9	1.27
8/26/53	46° 32'	87° 00'	49	74.0	1.51
"	47° 23'	87° 56'	"	31.2	0.64
8/28/53	47° 13'	88° 11'	51	14.1	0.28
"	" "	" "	"	"	"
9/2/53	46° 58'	88° 00'	56	17.7	0.32
9/13/53	47° 13'	88° 09'	67	16.0	0.24
10/8/53	47° 08'	88° 14'	92	8.9	0.10
9/4/54	47° 13'	88° 09'	...	16.0	...

Table 15.--Abundance of plankton per cubic meter in Lake Superior, May-October, 1953 (Cisco)

Station (arabic) and cruise (roman) number	Month and day	Time (EST)	Depth (meters)	Wet volume (ml)	Dry weight (mg)	Organic content (mg)	Ash content (mg)
Station 1							
I	5- 5	15:02	0	.489	129.1	57.7	71.4
III	6-12	14:00	0	.623	510.6	483.6	27.0
III	6-23	11:08	0	.599	62.5	43.9	18.6
III	6-23	11:18	22	1.202	235.6	180.3	55.3
IV	7-13	14:37	0	2.306	507.3	230.6	276.7
V	7-22	13:56	0	.801	167.2	81.8	85.4
VI	8-12	11:46	0	1.252	215.3	...	...
VI	8-24	12:29	0	.312	59.2	49.9	9.3
VI	8-24	12:57	9.7	2.093	348.9	227.9	120.9
VI	8-24	12:57	19	7.798	1,824.8	1,434.9	389.9
Station 2							
I	5- 6	12:11	0	.265	107.6	40.6	67.0
II	5-22	12:29	0	.255	95.3	50.2	45.1
II	6- 1	22:44	0	.640	528.8	463.8	65.0
IV	7-12	13:31	0	.932	177.2	121.2	55.9
VII	9- 2	12:35	0	.691	134.2	94.7	39.5
VII	9-11	19:21	0	1.851	610.9	555.4	55.5
VIII	10- 4	12:26	0	1.322	274.9	203.5	71.4
IX	10-14	13:16	0	.849	169.7	106.9	62.8
Station 3							
I	5- 7	11:28	0	.291	133.7	58.1	75.6
Station 4							
I	5- 7	09:25	0	.212	71.9	41.5	30.5
IV	7- 8	13:35	33	.520	171.8	83.9	87.9
V	7-24	10:03	0	.371	68.7	27.8	40.8
VIII	10- 3	14:15	0	1.020	212.7	125.3	87.4
Station 5							
I	5- 8	12:00	0	.133	62.2	24.9	37.3
Station 7							
I	5- 9	11:14	0.3	.340	157.6	112.4	45.2

Table 15.--Abundance of plankton per cubic meter in Lake Superior, May-October, 1953 (Cisco) (cont'd)

Station (arabic and cruise (roman) number	Month and day	Time (EST)	Depth (meters)	Wet volume (ml)	Dry weight (mg)	Organic content (mg)	Ash content (mg)
Station 9							
I	5-11	08:32	1	.360	126.6	67.6	59.0
IX	10-16	08:58	0	.878	480.5	449.2	31.4
Station 10							
IV	7-10	16:18	0	4.162	1,028.5	802.6	225.9
VII	9- 4	15:00	0	1.903	740.5	667.8	72.7
VIII	9-27	16:56	0	4.883	1,701.0	1,591.1	109.9
Station 11							
II	5-23	10:34	0	.117	120.5	112.3	8.2
1/V	7-25	10:44	0	.548	89.9	39.5	50.4
VIII	10- 1	13:25	0	.447	109.4	67.0	42.4
Station 12							
II	5-23	12:59	0	.062	41.2	39.3	1.9
VII	9- 8	12:13	0	.132	60.8	31.7	29.0
VIII	10- 1	10:59	0	.353	61.8	49.4	12.4
Station 13							
II	5-23	15:25	0	.103	29.9	23.7	6.2
Station 14							
II	5-24	13:15	0	.081	14.1	10.5	3.6
Station 15							
II	5-24	15:35	0	.045	29.7	22.5	7.2
1/V	7-26	14:34	0	1.231	164.2	134.1	30.1
Station 16							
1/V	7-27	09:30	0	.290	81.1	28.9	52.1
Station 17							
II	5-26	16:06	0	.085	23.9	17.1	6.8

Table 15.--Abundance of plankton per cubic meter in Lake Superior, May-October, 1953 (Cisco) (cont'd)

Station (arabic) and cruise (roman) number	Month and day	Time (EST)	Depth (meters)	Wet volume (ml)	Dry weight (mg)	Organic content (mg)	Ash content (mg)
Station 18							
II	5-27	10:32	0	.095	32.7	16.6	16.1
Station 19							
II	5-27	12:40	0	.053	31.2	17.1	14.1
Station 20							
II	5-28	11:40	0	.636	130.5	64.4	66.1
Station 21							
II	5-29	13:52	0	.283	158.6	131.4	27.2
V	7-30	16:30	0	.604	159.6	101.9	57.7
Station 24							
II	5-30	10:17	0	.352	117.3	66.9	50.4
Station 27							
II	5-31	15:46	0	.248	799.8	750.2	49.5
V	7-31	17:15	0	1.334	261.4	202.7	58.7
Station 28							
II	6- 1	12:26	0	.239	87.2	40.2	47.0
Station 29							
III	6-12	15:13	0	.500	87.2	48.6	38.6
Station 31							
III	6-13	14:13	0.3	.51	287.5	268.6	18.9
Station 34							
III	6-14	15:30	0.3	.954	63.1	39.3	23.8
Station 35							
III	6-15	10:25	0.7	.452	80.1	39.5	40.6

Table 15.--Abundance of plankton per cubic meter in Lake Superior, May-October, 1953 (Cisco) (cont'd)

Station (arabic) and cruise (roman) number	Month and day	Time (EST)	Depth (meters)	Wet volume (ml)	Dry weight (mg)	Organic content (mg)	Ash content (mg)
Station 36							
III	6-15	13:05	0.7	.163	42.2	26.0	16.2
Station 37							
III	6-16	13:32	0	.284	77.1	53.3	23.8
Station 38							
III	6-17	10:08	0.7	.412	42.9	26.4	16.5
Station 41							
III	6-21	08:36	0.3	.526	122.7	120.1	2.6
Station 43							
IV	7- 1	16:25	10	1.031	214.4	167.0	47.4
IV	7- 1	16:40	0	.977	96.5	52.5	44.0
VIII	10- 4	14:39	0	.919	188.0	126.7	61.3
Station 44							
IV	7- 2	14:14	0	1.129	250.6	191.9	58.7
Station 45							
IV	7- 3	10:57	0	.610	81.9	47.1	34.9
Station 46							
IV	7- 3	12:40	0	.549	123.0	50.5	72.5
Station 47							
IV	7- 3	15:11	0	.527	88.9	46.8	42.1
Station 48							
IV	7- 3	16:53	0	.687	111.5	59.6	51.9

Table 15.--Abundance of plankton per dubic meter in Lake Superior, May-October, 1953 (Cisco) (cont'd)

Station (arabic) and cruise (roman) number	Month and day	Time (EST)	Depth (meters)	Wet volume (ml)	Dry weight (mg)	Organic content (mg)	Ash content (mg)
Station 49							
IV	7- 4	09:55	0	.430	124.6	58.4	66.2
Station 50							
IV	7- 4	14:33	0	.184	66.3	37.8	28.6
Station 51							
IV	7- 5	09:32	0	.232	100.7	43.4	57.3
Station 52							
IV	7- 5	11:34	0	.287	114.7	50.6	64.1
VII	9- 7	10:56	0	3.089	219.1	126.4	92.7
Station 55							
IV	7- 6	12:24	0	.248	67.9	49.7	18.2
Station 56							
IV	7- 8	15:50	0	2.332	438.3	242.5	95.9
Station 57							
IV	7- 9	13:25	0	.979	170.8	74.7	96.1
Station 58							
IV	7-10	10:14	0	2.601	559.3	351.2	208.1
Station 59							
IV	7-11	11:50	0	.984	115.2	61.8	53.4
IV	7-11	12:27	28	.561	171.1	106.6	64.5
Station 60							
IV	7-11	14:16	0	1.212	208.5	92.1	116.3

Table 15.--Abundance of plankton per cubic meter in Lake Superior, May-October, 1953 (Cisco) (cont'd)

Station (arabic) and cruise (roman) number	Month and day	Time (EST)	Depth (meters)	Wet volume (ml)	Dry weight (mg)	Organic content (mg)	Ash content (mg)
Station 61							
IV	7-11	17:36	0	.528	121.8	60.9	60.9
IV	7-11	18:23	43	.475	83.0	48.6	34.4
V	8- 2	11:09	0	2.765	508.7	357.5	151.1
VIII	10- 2	16:14	0	1.196	267.0	171.4	95.7
Station 62							
IV	7-13	16:24	0	.528	112.6	80.4	32.2
VI	8-12	15:36	0	.238	33.7	25.3	8.4
VI	8-24	16:16	0	.556	...	...	40.8
VI	8-24	16:16	10	2.031	473.3	398.1	75.2
Station 63							
1/V	7-26	10:04	0	.760	83.6	48.1	35.5
VII	9- 8	09:53	0	.308	80.0	46.2	33.9
VIII	9-28	15:02	0	.281	77.3	53.9	23.4
Station 64							
1/V	7-27	11:35	0	1.265	181.4	118.1	63.3
Station 66							
V	7-29	09:35	55	3.032	2,141.5	2,025.7	115.8
Station 71							
VI	8-13	13:32	0	.371	50.6	16.1	34.6
Station 72							
VI	8-13	17:19	0	2.011	337.8	229.2	108.6
Station 75							
VI	8-15	13:15	0	.605	94.9	74.7	20.2
Station 76							
VI	8-15	16:16	0	.611	69.9	55.9	14.0

Table 15.--Abundance of plankton per cubic meter in Lake Superior, May-October, 1953 (Cisco) (cont'd)

Station (arabic) and cruise (roman) number	Month and day	Time (EST)	Depth (meters)	Wet volume (ml)	Dry weight (mg)	Organic content (mg)	Ash content (mg)
Station 77							
VI	8-15	17:26	0	.934	280.0	156.8	123.2
Station 78							
VI	8-16	14:59	0	1.015	97.0	81.2	15.8
VI	8-16	15:09	63	.450	150.0	141.0	9.0
Station 79							
VI	8-17	13:37	0	1.758	155.4	87.9	67.4
VI	8-17	14:39	9	8.161	571.3	362.7	208.6
VI	8-17	13:53	15	3.106	763.6	711.8	51.8
VI	8-17	14:08	31	.716	171.8	121.7	50.1
Station 80							
VI	8-18	15:08	0	1.810	...	...	85.3
Station 82							
VI	8-19	14:38	0	1.311	...	...	85.2
Station 83							
VI	8-20	09:07	0	1.905	...	...	57.1
Station 84							
VI	8-20	11:16	0	1.226	137.9	101.1	36.8
Station 85							
VI	8-20	13:24	0	.218	...	...	17.5
Station 86							
VI	8-21	11:46	0	.350	...	...	24.5
Station 87							
VI	8-21	16:12	0	.751	137.4	103.0	34.3

Table 15.--Abundance of plankton per cubic meter in Lake Superior, May-October, 1953 (Cisco) (cont'd)

Station (arabic) and cruise (roman) number	Month and day	Time (EST)	Depth (meters)	Wet volume (ml)	Dry weight (mg)	Organic content (mg)	Ash content (mg)
Station 88							
VI	8-23	10:59	0	.295	...	...	11.8
Station 92							
VII	9- 6	12:53	0	2.366	249.5	146.3	103.3
Station 96							
VIII	9-30	15:55	0	1.092	298.5	243.9	54.6

1/ Taken with No. 20 mesh net

Table 16.--Codes for bathythermograph observations (Williams)

Sea state		Visibility		Wind force 1/		Cloud coverage	
Code	Approximate height (feet)	Code and description	Extent	Description	Miles per hour	Code	Amount
0	Flat calm	0 Dense fog	50 yards	Calm	0 to 2	0	No clouds
1	Less than 1	1 Thick fog	200 yards	Light	2 to 6	1	Less than 1/10 or 1/10
2	1 to 3	2 Fog	400 yards	Fresh	6 to 12	2	2/10 and 3/10
3	3 to 5	3 Moderate fog	1,000 yards	Brisk	12 to 20	3	4/10
4	5 to 8	4 Thin fog or mist	1 mile			4	5/10
5	8 to 12	5 Visibility poor	2 miles			5	6/10
6	12 to 20	6 Visibility moderate	5 miles			6	7/10 and 8/10
7	20 to 40	7 Visibility good	10 miles			7	9/10 and 9/10 plus
8	40 and over	8 Visibility very good	30 miles			8	10/10
9	Very rough	9 Visibility excellent	Over 30 miles			9	Sky obscured
						10	Heavy fog with sky obscured

1/ Bathythermograph observations were not made when the wind was in excess of 20 miles per hour

Table 17.--Observations at bathythermograph casts, 1956 (Williams)

Bathythermograph	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Barometer (inches)	Visibility	Sea	Wind	
					Surface (°C.)	Metalimnion				Deepest reading					Direction	Force
						Upper limits		Lower limits								
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)					
1	6/4	0900	47°03'	88°09'	...	...	...	...	...	...	...	29.45	7	1	16	Light
2	6/6	1300	46°59'	87°35'	2.8	...	...	...	...	2.8	12.2	29.40	7	2	12	Light
3	6/6	1600	47°01'	87°30'	3.1	...	...	...	...	3.1	70.1	29.43	7	2	12	Fresh
4	6/8	0910	47°21'	87°32'	3.1	...	...	...	...	3.1	13.7	29.38	8	2	28	Light
5	6/12	1050	47°16'	87°36'	3.2	...	...	...	...	3.2	88.4	29.35	8	2	16	Fresh
6	6/18	0910	47°22'	88°37'	3.4	...	...	...	...	3.4	39.6	29.52	7	2	30	Light
7	6/18	1500	47°35'	88°20'	2.8	...	...	...	...	2.8	54.9	29.58	8	3	30	Fresh
8	6/19	1030	47°38'	88°14'	3.1	...	...	...	...	3.1	64.0	29.38	7	3	14	Fresh
9	6/19	1500	47°58'	88°24'	2.8	...	...	...	...	2.8	90.0	29.30	7	3	14	Brisk
10	6/23	0930	47°26'	88°36'	3.1	...	...	...	...	3.1	88.4	29.35	2	2	16	Light
11	6/23	1100	47°46'	88°47'	3.1	...	...	...	...	3.1	64.0	29.35	7	2	16	Light
12	6/23	1500	47°54'	88°21'	2.8	...	...	...	...	2.8	51.8	29.36	7	2	16	Fresh
13	6/26	1100	47°48'	88°01'	2.8	...	...	...	...	2.8	76.2	29.19	7	2	12	Brisk
14	6/28	0952	47°37'	88°57'	3.1	...	...	...	...	3.1	85.3	29.36	8	2	30	Brisk
15	6/28	1350	47°44'	88°35'	3.1	...	...	...	...	3.1	79.2	29.40	8	2	16	Fresh
16	6/29	0948	47°30'	88°50'	3.4	...	...	...	...	3.4	65.5	29.28	7	1	12	Light
17	6/29	1122	47°40'	89°10'	3.1	...	...	...	...	3.1	82.3	29.28	7	0	12	Light
18	6/29	1432	47°10'	89°08'	6.1	...	...	...	...	3.8	76.2	29.21	6	2	16	Brisk
19	7/2	1050	47°25'	89°11'	3.4	...	...	...	...	3.4	24.4	29.36	7	2	12	Light
20	7/2	1500	47°44'	89°20'	3.4	...	...	...	...	3.4	79.2	29.43	7	2	12	Light
21	7/5	1035	47°22'	88°41'	3.6	...	...	...	...	3.6	64.1	29.50	8	1	10	Light
22	7/5	1425	48°03'	88°22'	3.1	...	...	...	...	3.1	85.3	29.43	7	2	12	Brisk

Table 17.--Observations at bathythermograph casts, 1956 (Williams)
(cont'd)

Bathythermograph	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Barometer (inches)	Visibility	Sea	Wind	
					Surface (°C.)	Metalimnion				Deepest reading					Direction	Force
						Upper limits		Lower limits								
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)					
23	7/6	1103	47°51'	88°39'	3.1	...	...	...	...	3.1	61.0	29.39	7	2	12	Brisk
24	7/6	1440	47°51'	88°09'	3.1	...	...	...	...	3.1	27.4	29.45	6	2	12	Brisk
25	7/7	0925	47°43'	88°41'	3.1	...	...	...	...	3.1	77.7	29.44	1	1	10	Light
26	7/7	1110	47°41'	88°41'	3.1	...	...	...	...	3.1	27.4	29.42	1	1	12	Brisk
27	7/7	1402	47°30'	88°32'	3.1	...	...	...	...	3.1	57.9	29.40	4	2	13	Brisk
28	7/9	1505	47°47'	88°36'	3.1	...	...	...	...	3.1	30.5	29.20	7	2	12	Brisk
29	7/10	0920	47°42'	88°06'	3.1	...	...	...	...	3.1	27.4	29.22	7	3	14	Brisk
30	7/10	1500	47°46'	88°03'	3.4	...	...	...	...	3.4	79.2	29.22	7	3	14	Brisk
31	7/11	1332	47°31'	88°17'	3.4	...	...	...	...	3.4	24.4	29.29	2	1	12	Light
32	7/12	1015	47°24'	89°07'	6.1	...	...	...	...	4.7	21.3	29.24	8	2	12	Light
33	7/17	1355	47°48'	89°48'	4.5	...	...	...	...	3.4	30.5	29.50	6	2	10	Light
34	7/18	1005	47°22'	89°00'	9.5	7.8	18.3	6.1	21.3	3.6	79.2	29.48	7	2	10	Light
35	7/18	1420	47°28'	89°18'	8.1	8.1	6.1	6.1	9.1	3.7	79.2	29.50	7	2	10	Light
36	7/18	1620	47°30'	89°31'	4.5	...	...	...	...	3.6	59.4	29.50	7	2	12	Brisk
37	7/19	0950	47°25'	89°21'	7.8	7.8	9.1	5.9	12.2	3.5	82.3	29.47	7	2	14	Brisk
38	7/20	1004	47°19'	89°28'	8.9	8.9	9.1	4.7	15.2	3.5	44.2	29.40	7	3	20	Brisk
39	7/20	1415	47°20'	89°30'	8.4	7.8	9.1	4.5	15.2	3.8	51.8	29.44	7	3	20	Brisk
40	7/20	1633	47°18'	89°10'	12.0	12.0	7.6	8.6	9.1	3.5	64.0	29.44	5	3	16	Brisk
41	7/21	1005	47°16'	89°30'	10.0	10.0	7.6	5.9	15.2	3.6	45.7	29.31	8	2	12	Light
42	7/23	1320	47°21'	89°39'	8.9	8.9	0	4.5	18.3	3.5	82.3	29.35	7	2	10	Light
43	7/23	1510	47°15'	89°36'	10.6	8.4	10.7	6.7	11.3	3.5	76.2	29.35	5	1	5	Light
44	7/23	1625	47°00'	89°21'	13.1	12.5	9.1	8.9	12.2	3.9	33.5	29.34	5	1	5	Light
45	7/24	1005	47°08'	89°31'	12.0	12.0	9.1	5.0	18.3	3.4	56.4	29.22	8	3	10	Light

Table 17.--Observations at bathythermograph casts, 1956 (Williams)
(cont'd)

Bathythermograph	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Barometer (inches)	Visibility	Sea	Wind	
					Surface (°C.)	Metalimnion				Deepest reading					Direction	Force
						Upper limits		Lower limits								
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)					
46	7/24	1502	47°17'	89°44'	6.4	6.4	0	3.9	24.4	3.6	57.9	29.21	7	3	10	Light
47	7/25	1410	47°20'	89°36'	...	...	...	...	...	...	...	29.32	8	0	5	Light
48	7/25	1742	47°34'	89°50'	5.6	5.6	0	4.5	18.3	3.6	82.3	29.32	8	0	5	Light
49	7/26	0835	47°26'	89°54'	6.1	6.1	0	3.9	12.2	3.7	85.3	29.22	5	1	7	Brisk
50	7/26	1240	47°12'	89°38'	12.2	12.2	0	4.5	21.3	3.4	82.3	29.22	5	1	7	Light
51	7/26	1730	47°11'	89°55'	...	...	...	...	...	...	...	29.22	6	1	7	Light
52	7/31	1250	47°44'	89°58'	10.0	10.0	0	3.9	18.3	3.8	79.2	29.40	8	3	11	Brisk
53	7/31	1930	47°47'	89°24'	7.2	7.2	0	5.0	19.8	3.6	109.7	29.39	9	2	10	Fresh
54	8/2	0830	47°31'	89°53'	8.1	8.1	0	3.9	27.4	3.4	88.4	29.50	9	2	8	Fresh
55	8/3	1123	47°05'	89°53'	11.7	11.7	0	3.9	18.3	3.4	105.1	29.49	5	2	12	Brisk
56	8/4	1350	47°03'	90°09'	10.0	10.0	7.6	6.1	13.7	3.6	88.4	29.32	3	2	24	Fresh
57	8/7	1415	46°58'	90°01'	13.9	13.9	0	5.0	15.2	3.4	93.0	29.30	9	0	Var.	Light
58	8/10	1125	46°51'	90°00'	13.9	13.9	0	5.6	15.2	3.4	91.4	29.31	9	1	Var.	Light
59	8/14	1120	46°49'	90°05'	...	...	...	...	...	...	...	29.30	9	2	20	Brisk
60	8/14	1610	46°43'	90°17'	...	...	...	...	...	...	...	29.31	8	1	20	Light
61	8/18	1250	47°15'	90°05'	10.9	10.0	9.1	3.9	18.3	3.5	96.0	29.35	9	3	20	Brisk
62	8/20	1115	47°20'	90°04'	12.2	12.0	15.2	5.9	24.4	5.4	88.4	29.51	9	2	24	Brisk
63	8/21	1015	47°23'	90°03'	12.8	12.2	12.2	6.1	22.9	5.0	106.7	29.32	9	2	24	Brisk
64	8/23	0830	47°27'	90°07'	...	...	...	...	...	...	...	29.11	9	1	Var.	Light
65	8/31	1240	47°04'	91°26'	14.2	13.4	18.3	6.1	24.4	5.0	97.5	29.09	9	2	10	Light
66	8/31	1810	47°05'	91°07'	...	...	...	...	...	...	...	28.91	4	2	10	Brisk
67	9/1	1410	46°54'	91°26'	12.8	9.7	18.3	5.0	21.3	4.6	91.4	...	9	2	10	Light

Table 18.--Observations at bathythermograph casts, 1957 (Williams)

Bathythermograph	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Barometer (inches)	Visibility	Sea	Clouds	Wind	
					Surface (°C.)	Metalimnion				Deepest reading						Direction	Force
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
1	5/31	1600	46°58'	87°20'	...	...	...	...	...	...	...	29.79	6	2	2	12	Light
2	5/31	1603	46°58'	87°20'	...	...	...	...	...	...	...	29.79	6	2	2	12	Light
3	6/3	0827	47°04'	87°01'	...	...	...	...	...	...	...	29.93	6	2	2	16	Light
4	6/3	1000	47°18'	87°01'	...	...	...	...	...	...	...	29.98	6	2	6	16	Light
5	6/3	1010	47°18'	87°01'	...	...	...	...	...	...	...	29.89	6	2	4	16	Light
6	6/3	1320	48°03'	87°00'	...	...	...	...	...	...	...	29.88	9	2	1	16	Light
7	6/4	0841	48°35'	87°16'	2.4	...	...	...	...	2.8	61.0	30.05	8	2	3	4	Light
8	6/4	1000	48°18'	87°18'	2.4	...	...	...	...	2.9	112.8	30.08	8	2	3	4	Light
9	6/4	1858	47°18'	87°31'	2.5	...	...	...	...	3.3	112.8	30.04	8	2	2	4	Light
10	6/5	0858	47°35'	87°33'	2.5	...	...	...	...	3.3	112.8	29.93	7	2	6	8	Light
11	6/5	1314	47°52'	87°25'	2.5	...	...	...	...	3.1	109.7	29.91	6	2	6	8	Light
12	6/6	1115	47°33'	87°14'	2.5	...	...	...	...	3.1	112.8	29.68	2	2	5	4	Light
13	6/6	1301	47°56'	87°14'	2.5	...	...	...	...	3.2	112.8	29.72	4	2	5	4	Light
14	6/10	1048	47°26'	87°07'	2.6	...	...	...	...	3.4	115.8	29.71	4	2	5	8	Fresh
15	6/10	1301	47°52'	87°07'	2.5	...	...	...	...	3.1	111.3	29.73	4	2	5	8	Fresh
16	6/10	1504	48°00'	86°39'	2.5	...	...	...	...	3.4	112.8	29.71	4	2	5	8	Light
17	6/10	1650	47°48'	86°14'	2.4	...	...	...	...	2.9	115.8	29.66	4	2	5	8	Light
18	6/11	0855	47°19'	85°58'	2.3	...	...	...	...	2.9	108.2	29.55	1	2	...	...	Calm
19	6/11	1817	47°12'	85°33'	2.2	...	...	...	...	2.9	112.8	29.58	1	2	...	24	Light
20	6/12	0904	47°27'	85°09'	2.2	...	...	...	...	2.9	114.3	29.76	6	2	4	24	Light
21	6/12	1113	47°22'	85°43'	2.3	...	...	...	...	3.3	97.5	29.76	6	2	6	24	Light
22	6/13	0901	48°08'	86°45'	...	...	...	...	...	...	...	29.58	7	3	7	16	Fresh
23	6/13	1055	48°08'	87°17'	2.6	...	...	...	...	3.3	114.3	29.56	7	3	5	16	Fresh

Table 18.--Observations at bathythermograph casts, 1957 (Williams)
(cont'd)

Bathythermograph	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Barometer (inches)	Visibility	Sea	Clouds	Wind	
					Surface (°C.)	Metalimnion				Deepest reading						Direction	Force
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
24	6/13	1338	47°48'	87°41'	2.5	...	...	...	...	3.2	112.8	29.53	7	3	5	16	Light
25	6/13	1517	47°29'	87°41'	2.9	...	...	...	...	3.4	54.9	29.53	7	3	6	16	Light
26	6/14	0903	47°20'	87°08'	2.6	...	...	...	...	3.2	97.5	29.52	0	2	...	...	Calm
27	6/14	1308	46°58'	87°14'	2.5	...	...	...	...	3.2	103.6	29.50	0	2	...	...	Calm
28	6/20	1110	47°27'	87°16'	2.5	...	...	...	...	3.2	94.5	29.63	7	1	6	...	Calm
29	6/20	1518	47°43'	87°30'	2.8	...	...	...	...	3.4	112.8	29.63	3	1	5	...	Calm
30	6/21	0900	47°43'	87°44'	2.8	...	...	...	...	3.2	85.3	29.53	3	1	5	...	Calm
31	6/21	1049	48°05'	87°44'	2.8	...	...	...	...	3.2	97.5	29.53	2	1	...	...	Calm
32	6/21	1310	47°44'	87°45'	2.8	...	...	...	...	3.4	100.6	29.49	2	1	...	...	Calm
33	6/22	0745	47°26'	87°14'	2.6	...	...	...	...	3.2	100.6	29.51	4	2	9	12	Light
34	6/22	1054	47°02'	86°53'	...	...	...	...	...	...	...	29.58	4	2	9	12	Light
35	6/22	1248	47°17'	87°05'	2.6	...	...	...	...	3.4	99.1	29.56	4	2	9	12	Light
36	6/24	1255	47°25'	86°47'	2.7	...	...	...	...	3.2	88.4	29.93	7	2	9	4	Light
37	6/24	1535	47°35'	86°31'	...	...	...	...	...	...	...	29.90	7	2	10	4	Light
38	6/25	0934	47°24'	86°13'	2.8	...	...	...	...	3.4	91.4	29.72	1	2	...	...	Calm
39	6/25	1407	47°33'	86°31'	2.7	...	...	...	...	3.2	91.4	29.68	1	1	...	...	Calm
40	6/25	1551	47°41'	86°38'	2.5	...	...	...	...	3.2	91.4	29.66	1	1	...	...	Calm
41	6/26	0845	47°27'	86°05'	2.5	...	...	...	...	3.1	88.4	29.56	1	2	10	24	Fresh
42	6/26	1048	47°11'	85°52'	3.1	...	...	...	...	3.9	91.4	29.53	3	2	10	24	Fresh
43	6/26	1233	47°18'	86°07'	2.8	...	...	...	...	3.4	70.1	29.54	0	1	10	20	Light
44	6/26	1453	47°32'	86°43'	2.5	...	...	...	...	3.1	77.7	29.53	0	1	10	20	Light
45	6/26	1647	47°33'	86°25'	2.6	...	...	...	...	3.2	94.5	29.52	0	1	...	20	Light
46	6/26	1843	47°38'	86°02'	2.8	...	...	...	...	3.4	94.5	29.53	0	2	...	20	Light

Table 18.--Observations at bathythermograph casts, 1957 (Williams)
(cont'd)

Bathythermograph	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Barometer (inches)	Visibility	Sea	Clouds	Wind	
					Surface (°C.)	Metalimnion				Deepest reading						Direction	Force
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
47	6/27	0758	47°40'	85°55'	2.6	...	...	...	...	3.4	91.4	29.63	3	2	...	20	Light
48	6/27	0944	47°50'	86°22'	2.8	...	...	...	...	3.4	82.3	29.64	3	2	...	20	Light
49	6/27	1234	47°39'	86°43'	2.9	...	...	...	...	3.5	97.5	29.63	4	2	6	20	Light
50	6/28	1057	47°15'	87°03'	2.8	...	...	...	...	3.4	91.4	29.48	5	2	4	20	Light
51	7/1	1036	47°13'	87°00'	2.9	...	...	...	...	3.5	102.1	29.92	4	2	7	4	Light
52	7/1	1238	47°30'	86°49'	2.8	...	...	...	...	3.4	91.4	29.93	4	2	5	4	Light
53	7/1	1433	47°47'	86°41'	2.6	...	...	...	...	3.4	97.5	29.92	4	2	5	4	Light
54	7/6	0747	47°26'	87°28'	...	...	...	...	...	...	...	29.63	7	3	4	24	Fresh
55	7/8	1115	47°15'	87°03'	2.8	...	...	...	...	3.4	94.5	29.62	5	1	5	28	Light
56	7/9	1248	47°45'	85°31'	2.8	...	...	...	...	3.4	91.4	29.88	8	3	4	24	Brisk
57	7/10	1010	47°55'	86°17'	2.8	...	...	...	...	3.4	93.0	30.10	7	1	5	24	Light
58	7/10	1323	48°25'	86°45'	2.8	...	...	...	...	3.4	94.5	30.06	7	1	5	24	Light
59	7/10	1535	48°40'	86°37'	5.6	5.6	0	3.9	22.9	3.9	70.1	30.03	7	1	4	24	Light
60	7/11	0808	48°27'	86°47'	2.9	...	...	...	...	3.4	76.2	29.97	8	0	3	12	Light
61	7/11	1047	48°00'	86°30'	3.1	...	...	...	...	3.9	114.3	29.96	8	0	3	12	Light
62	7/11	1414	47°44'	86°05'	3.1	...	...	...	...	3.5	91.4	29.92	8	0	7	12	Light
63	7/12	0807	47°12'	85°58'	...	...	...	...	...	...	...	29.80	7	1	8	12	Light
64	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
65	7/12	1303	47°14'	86°59'	3.0	...	...	...	...	3.4	91.4	29.76	1	0	1	12	Light
66	7/15	1526	47°56'	87°19'	5.0	...	...	...	...	3.9	100.6	30.12	8	0	4	4	Light
67	7/16	1430	48°30'	87°32'	2.8	...	...	...	...	3.5	114.3	30.03	7	2	9	12	Light
68	7/17	0910	48°25'	88°00'	2.9	...	...	...	...	3.5	112.8	30.08	5	1	10	4	Light
69	7/17	1107	48°00'	88°00'	3.1	...	...	...	...	3.5	80.8	30.08	3	1	3	4	Light

Table 18.--Observations at bathythermograph casts, 1957 (Williams)
(cont'd)

Bathythermograph	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Barometer (inches)	Visibility	Sea	Clouds	Wind	
					Surface (°C.)	Metalimnion				Deepest reading						Direction	Force
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
70	7/17	1315	47°50'	87°36'	5.3	5.3	0	3.9	9.1	3.9	100.6	30.01	7	1	1	12	Light
71	7/17	1458	47°29'	87°37'	10.0	10.0	0	3.9	18.3	3.9	67.1	29.99	7	1	...	12	Light
72	7/18	0915	47°52'	87°51'	3.0	...	...	...	...	3.5	109.7	29.95	4	2	...	12	Light
73	7/18	1319	47°53'	87°51'	3.0	...	...	...	...	3.6	97.5	29.94	6	2	4	12	Light
74	7/18	1605	48°07'	88°10'	2.9	...	...	...	...	3.6	121.9	29.88	7	2	8	8	Light
75	7/19	0937	48°09'	87°55'	3.2	...	...	...	...	3.9	112.8	29.93	5	1	8	14	Light
76	7/19	1103	48°06'	88°13'	3.1	...	...	...	...	3.7	112.8	29.92	6	1	2	14	Light
77	7/19	1330	48°04'	88°08'	3.1	...	...	...	...	3.9	117.3	29.94	3	0	1	20	Light
78	7/19	1526	48°00'	88°06'	3.1	...	...	...	...	3.6	109.7	29.97	3	0	1	20	Light
79	7/19	1845	47°40'	87°48'	...	...	...	...	...	...	...	29.98	7	0	4	20	Light
80	7/20	0801	47°23'	87°10'	...	...	...	...	...	...	...	...	2	2	8	4	Light
81	7/20	1013	47°13'	86°45'	2.9	...	...	...	...	3.4	85.3	29.83	1	3	10	0	Fresh
82	7/23	0958	47°23'	87°24'	10.3	9.5	18.3	4.5	24.4	3.9	97.5	30.19	8	2	5	8	Light
83	7/23	1224	47°53'	87°24'	...	...	...	...	...	...	...	30.22	8	2	1	8	Light
84	7/23	1348	48°08'	87°24'	4.5	...	...	...	...	3.9	51.8	30.19	8	1	1	8	Light
85	7/24	0916	48°17'	88°04'	4.2	...	...	...	...	3.9	96.0	30.16	9	0	5	4	Light
86	7/24	1054	48°13'	87°57'	3.4	...	...	...	...	3.9	100.6	30.15	8	0	4	4	Light
87	7/24	1315	47°56'	87°55'	3.4	...	...	...	...	3.5	56.4	30.19	8	0	4	4	Light
88	7/24	1442	47°47'	87°53'	5.6	5.6	0	4.2	9.1	3.9	94.5	30.13	8	0	4	4	Light
89	7/25	0852	48°09'	87°31'	...	...	...	...	...	...	...	29.98	7	0	8	4	Light
90	7/25	1101	47°55'	87°40'	7.8	7.8	0	3.9	18.3	3.9	79.2	30.02	7	0	10	4	Light
91	7/25	1253	48°11'	87°47'	3.4	...	...	...	...	3.8	61.0	30.04	6	1	9	4	Light
92	7/25	1450	48°04'	87°50'	4.0	...	...	...	...	3.9	109.7	30.00	5	1	10	4	Light

Table 18.--Observations at bathythermograph casts, 1957 (Williams)
(cont'd)

Bathythermograph	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Barometer (inches)	Visibility	Sea	Clouds	Wind	
					Surface (°C.)	Metalimnion				Deepest reading						Direction	Force
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
93	7/25	1655	48°30'	87°50'	...	...	...	...	...	...	...	29.99	4	1	10	4	Light
94	7/26	0852	48°11'	87°30'	5.6	5.6	0	3.9	9.1	3.9	51.8	29.93	3	1	10	12	Light
95	7/26	1118	47°47'	87°22'	...	...	...	...	...	...	...	29.95	3	1	10	12	Light
96	7/26	1253	47°28'	87°23'	8.4	8.4	0	3.9	21.3	3.9	106.7	29.96	3	1	10	12	Light
97	7/26	1515	47°01'	87°22'	14.5	14.5	0	4.5	21.3	3.9	125.0	29.98	5	1	6	12	Light
98	7/29	0739	47°04'	87°06'	15.0	15.0	0	4.5	19.8	3.8	91.4	29.83	4	1	3	20	Light
99	7/29	1020	47°22'	87°08'	12.8	12.8	0	4.5	12.2	3.9	118.9	29.85	4	1	10	20	Light
100	7/29	1118	47°03'	87°04'	3.9	...	...	...	...	3.9	112.8	29.80	0	1	10	20	Light
101	7/29	1314	47°56'	87°09'	11.1	11.1	0	4.5	21.3	3.7	121.9	29.78	6	1	1	20	Light
102	7/29	1447	48°12'	87°05'	7.2	7.2	0	3.9	9.1	3.9	121.9	29.80	7	1	2	24	Light
103	7/29	1651	48°06'	86°29'	5.6	5.6	0	4.1	15.2	3.9	121.9	29.77	6	1	2	24	Light
104	7/30	0844	48°07'	87°09'	...	...	...	...	...	...	...	29.82	5	1	3	24	Fresh
105	7/30	1111	48°30'	87°28'	7.8	7.8	0	3.9	15.2	3.9	125.0	29.83	7	1	8	24	Fresh
106	7/30	1259	48°13'	87°16'	7.2	7.2	0	4.5	15.2	4.5	118.9	29.85	6	1	7	24	Light
107	7/30	1457	48°13'	86°40'	7.8	7.8	0	4.5	12.2	3.9	73.1	29.83	8	1	6	24	Light
108	7/31	0854	48°09'	86°30'	7.2	7.2	0	4.5	12.2	3.9	108.2	29.88	8	1	2	4	Light
109	7/31	1049	48°20'	86°55'	7.2	7.2	0	4.5	12.2	3.9	94.4	29.89	7	1	3	...	Calm
110	7/31	1257	48°42'	86°51'	11.1	11.1	0	4.5	10.7	4.0	106.7	29.88	7	1	3	...	Calm
111	7/31	1455	48°28'	86°39'	8.9	8.9	0	4.6	21.3	4.0	48.8	29.85	7	1	3	...	Calm
112	8/1	0845	48°24'	86°41'	9.7	9.7	0	4.5	15.2	3.9	100.6	29.83	7	1	2	4	Light
113	8/1	1057	48°09'	86°25'	6.7	6.7	0	4.0	12.2	4.0	103.6	29.79	7	1	2	18	Light
114	8/1	1259	48°10'	86°20'	7.2	7.2	0	3.9	12.2	3.9	106.7	29.83	6	1	2	18	Light
115	8/1	1459	48°13'	86°18'	...	...	...	...	...	...	...	29.81	6	1	2	18	Light

Table 18.--Observations at bathythermograph casts, 1957 (Williams)
(cont'd)

Bathythermograph	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Barometer (inches)	Visibility	Sea	Clouds	Wind	
					Surface (°C.)	Metalimnion				Deepest reading						Direction	Force
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
116	8/1	1639	48°12'	86°27'	8.9	8.9	0	4.5	12.2	4.1	118.9	29.80	6	1	2	18	Light
117	8/2	0839	48°17'	86°28'	8.1	8.1	0	4.5	12.2	4.1	115.8	29.68	6	2	9	28	Brisk
118	8/2	1040	48°12'	86°51'	7.5	7.5	0	4.5	12.2	4.1	109.7	29.68	3	2	9	28	Brisk
119	8/2	1238	48°01'	86°22'	6.7	6.7	0	4.5	12.2	4.2	85.3	29.66	3	2	10	28	Brisk
120	8/2	1440	47°52'	86°49'	10.3	10.3	0	4.5	15.2	3.9	103.6	29.65	4	2	5	28	Brisk
121	8/2	1639	47°51'	85°55'	10.6	10.6	0	4.5	10.7	4.4	97.5	29.62	5	1	...	28	Brisk
122	8/3	0856	47°53'	86°21'	6.7	6.6	9.1	4.2	15.2	4.2	97.5	29.58	7	2	...	24	Fresh
123	8/3	1105	47°53'	86°51'	5.9	5.8	9.1	4.5	12.2	4.0	103.6	29.63	7	2	...	24	Fresh
124	8/5	1053	47°15'	87°17'	7.0	6.4	16.8	4.5	19.8	4.0	115.8	30.06	8	1	...	22	Fresh
125	8/5	1610	48°18'	87°13'	8.9	8.8	6.1	4.5	13.7	4.0	109.7	30.02	8	2	...	24	Fresh
126	8/6	0838	48°03'	86°55'	7.9	7.8	4.6	4.5	12.2	4.0	103.6	30.01	8	1	...	24	Light
127	8/6	1054	47°53'	86°59'	7.5	7.5	0	4.1	24.4	4.1	121.9	30.03	8	1	...	24	Fresh
128	8/6	1252	48°03'	86°57'	10.3	10.0	7.6	4.5	15.2	4.2	106.7	30.03	8	1	...	24	Light
129	8/6	1557	47°08'	86°56'	...	...	...	...	...	...	...	30.03	8	1	...	24	Light
130	8/7	1001	47°59'	87°04'	8.5	8.1	9.1	4.5	16.8	4.0	100.6	29.98	8	1	...	16	Light
131	8/7	1300	47°23'	87°05'	7.0	7.0	0	4.5	19.8	4.2	97.5	29.99	8	1	...	16	Light
132	8/8	0848	47°51'	86°00'	12.0	12.0	9.1	4.5	18.3	3.9	91.4	29.88	5	1	...	20	Light
133	8/8	1114	48°05'	86°39'	...	...	...	...	...	...	...	29.88	5	1	...	14	Light
134	8/9	0907	47°52'	86°35'	6.4	6.4	0	4.5	10.7	4.0	103.6	29.89	3	1	...	14	Light
135	8/9	1053	47°48'	86°56'	...	...	...	...	...	...	...	29.88	4	1	...	14	Light
136	8/9	1257	47°23'	86°57'	8.6	8.6	0	4.7	21.3	4.5	111.3	29.88	4	1	...	14	Light
137	8/12	1120	47°14'	87°05'	9.5	9.2	9.1	4.5	21.3	4.2	121.9	30.22	9	2	...	4	Light
138	8/12	1304	47°34'	86°53'	8.1	8.1	0	4.5	16.8	4.2	125.0	30.23	9	1	...	4	Light

Table 18.--Observations at bathythermograph casts, 1957 (Williams)
(cont'd)

Bathythermograph	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Barometer (inches)	Visibility	Sea	Clouds	Wind	
					Surface (°C.)	Metalimnion				Deepest reading						Direction	Force
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
139	8/12	1512	47°59'	86°53'	11.7	11.7	0	4.5	16.8	4.2	112.8	30.20	9	1	...	4	Light
140	8/12	1833	48°23'	86°20'	12.5	12.5	0	5.0	19.8	3.9	111.3	30.16	9	2	...	4	Light
141	8/14	0810	47°48'	85°32'	10.6	10.6	12.2	5.0	21.3	4.0	73.1	29.76	8	2	1	28	Fresh
142	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
143	8/14	1535	48°00'	86°08'	11.7	11.4	15.2	4.5	22.9	3.9	79.2	29.80	8	3	1	28	Light
144	8/15	0700	48°03'	87°08'	9.7	9.7	0	5.0	18.3	4.2	45.7	29.87	6	1	9	Var.	Light
145	8/16	1015	47°59'	86°36'	10.6	10.6	0	4.5	21.3	4.0	112.8	30.09	10	1	3	28	Light
146	8/16	1320	47°37'	85°55'	12.5	12.5	0	4.5	22.9	3.9	64.0	30.09	10	1	2	28	Light
147	8/17	0905	47°52'	86°34'	10.0	10.0	9.1	4.7	21.3	4.1	112.8	30.05	6	1	10	24	Light
148	8/19	1033	47°08'	86°55'	13.6	13.6	0	4.5	21.3	4.2	114.3	30.20	8	1	1	24	Light
149	8/19	1248	47°08'	86°48'	12.5	12.5	0	4.5	16.8	4.1	109.7	30.18	9	2	1	24	Light
150	8/19	1455	47°08'	86°40'	11.7	11.7	0	4.5	16.8	4.0	115.8	30.18	9	2	1	24	Light
151	8/20	1254	47°47'	86°32'	...	...	...	...	...	...	...	30.11	9	2	1	4	Fresh
152	8/20	1528	47°30'	85°51'	...	...	...	...	...	...	...	30.10	9	2	0	3	Light
153	8/21	1307	47°48'	86°40'	11.7	11.4	9.1	5.6	15.2	4.1	112.8	30.32	9	2	0	3	Light
154	8/21	1511	47°35'	86°08'	11.6	11.6	0	4.2	30.5	4.2	109.7	30.33	9	1	0	12	Light
155	8/22	0734	47°51'	85°18'	13.6	13.1	12.2	4.5	22.9	3.9	79.2	30.34	9	2	1	16	Fresh
156	8/22	0901	47°53'	85°02'	15.6	11.7	30.5	5.9	39.6	4.1	111.3	30.34	6	3	8	16	Fresh
157	8/22	1059	47°53'	85°38'	14.2	13.1	15.2	5.3	36.6	4.2	82.3	30.34	7	2	2	15	Fresh
158	8/22	1339	47°40'	86°08'	...	...	...	...	...	...	...	30.27	7	2	7	14	Fresh
159	8/22	1549	47°21'	86°00'	13.4	11.1	15.2	4.7	21.3	4.2	100.6	30.23	8	2	5	12	Light
160	8/23	1033	47°25'	86°21'	9.5	9.5	15.2	4.5	30.5	4.2	82.3	...	2	3	10	18	Fresh
161	8/23	1335	47°18'	86°43'	10.0	10.0	12.2	4.7	21.3	4.1	111.3	29.85	1	2	10	18	Fresh

Table 18.--Observations at bathythermograph casts, 1957 (Williams)
(cont'd)

Bathythermograph	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Barometer (inches)	Visibility	Sea	Clouds	Wind	
					Surface (°C.)	Metalimnion				Deepest reading						Direction	Force
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
162	8/23	1510	46°57'	86°44'	13.6	13.1	10.7	4.5	27.4	3.9	103.6	29.84	1	2	10	18	Light
163	8/26	0940	47°08'	87°07'	14.2	13.9	9.1	4.5	19.8	4.0	112.8	...	9	2	0	24	Fresh
164	8/27	1245	46°50'	86°47'	11.1	11.1	19.8	4.5	24.4	4.1	112.8	30.36	8	2	7	4	Fresh
165	8/27	1500	47°08'	86°15'	12.0	11.7	16.8	4.5	24.4	4.1	115.8	30.33	8	2	4	4	Fresh
166	8/28	0906	47°42'	85°35'	11.7	10.0	32.0	4.5	38.1	3.9	121.9	30.27	7	1	9	1	Light
167	8/29	0923	47°14'	85°51'	11.4	10.4	15.2	4.7	27.4	3.9	112.8	30.16	6	0	4	...	Calm
168	8/29	1312	47°23'	86°35'	9.7	8.9	18.3	4.7	30.5	4.0	102.1	30.13	6	0	5	...	Calm
169	8/29	1515	47°19'	86°36'	10.0	8.9	16.8	4.7	24.4	4.1	100.6	30.14	6	1	5	20	Light
170	8/30	0734	47°08'	86°03'	12.5	10.0	22.9	5.0	36.6	4.7	106.7	30.21	7	0	3	...	Calm
171	8/30	0937	47°18'	86°30'	11.1	9.5	19.8	4.5	27.4	4.4	100.6	30.22	8	0	3	...	Calm
172	8/30	1332	47°16'	86°37'	10.6	9.5	12.2	4.4	18.3	4.1	97.5	30.23	7	1	6	...	Calm
173	8/30	1512	47°11'	86°21'	13.4	11.7	12.2	4.5	19.8	4.0	91.4	30.23	7	0	7	...	Calm
174	8/31	0826	47°38'	86°23'	11.1	11.0	0	5.0	32.0	4.5	112.8	30.23	7	1	6	4	Light
175	8/31	1248	47°18'	87°08'	12.8	10.6	18.3	5.0	27.4	4.1	115.8	30.18	8	1	7	4	Light
176	9/3	0945	47°09'	87°06'	13.9	13.9	0	5.0	22.9	3.9	91.4	29.42	8	1	8	4	Fresh
177	9/5	0934	47°12'	87°07'	...	...	...	...	...	...	...	30.14	8	1	1	28	Light
178	9/5	1054	47°12'	86°44'	10.3	9.5	15.2	4.6	27.4	4.6	111.3	30.13	8	1	1	28	Light
179	9/5	1320	47°07'	86°23'	12.5	11.7	21.3	4.7	30.5	3.9	112.8	30.14	9	1	1	28	Light
180	9/5	1637	47°07'	86°31'	...	...	...	...	...	...	...	30.14	9	1	1	28	Light
181	9/6	0810	47°25'	86°37'	11.4	11.4	0	4.5	35.1	3.7	109.7	30.07	8	1	2	22	Light
182	9/6	1027	47°25'	86°29'	10.9	10.3	15.2	4.5	32.0	4.1	115.8	30.08	9	1	1	20	Light
183	9/6	1350	46°57'	86°38'	12.5	11.4	22.9	4.7	33.5	4.0	112.8	30.07	9	1	2	20	Light
184	9/9	1247	47°34'	86°31'	...	...	...	...	...	...	...	...	9	4	1	16	Fresh

Table 18.--Observations at bathythermograph casts, 1957 (Williams)

Bathythermograph	Month and day	Time (EST)	Latitude (North)	Longitude (West)	Temperature distribution							Barometer (inches)	Visibility	Sea	Clouds	Wind	
					Surface (°C.)	Metalimnion				Deepest reading						Direction	Force
						Upper limits		Lower limits									
						Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)	Temperature (°C.)	Depth (meters)						
185	9/10	1225	47°49'	85°05'	14.7	14.5	19.8	7.2	39.6	4.7	83.8	30.02	9	1	3	4	Light
186	9/10	1624	47°17'	85°15'	12.8	12.2	18.3	5.0	30.5	4.1	121.9	30.02	8	1	1	4	Light
187	9/11	1542	47°22'	85°26'	11.4	10.9	15.2	4.5	30.5	4.1	106.7	29.86	1	3	10	16	Fresh
188	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
189	9/12	0955	47°39'	85°19'	13.4	12.8	18.3	4.5	27.4	4.2	94.5	29.78	6	2	8	16	Fresh
190	9/12	1805	47°33'	85°17'	13.9	13.9	16.8	5.0	27.4	4.1	97.5	29.77	4	2	5	16	Light
191	9/13	1655	47°24'	85°24'	12.2	12.2	0	4.5	27.4	4.1	103.6	30.05	9	2	1	24	Light
192	9/17	0803	47°13'	85°18'	12.2	12.2	18.3	4.7	30.5	3.9	103.6	30.10	9	2	1	24	Light
193	9/17	1013	47°10'	85°38'	11.4	11.1	15.2	3.9	27.4	3.7	54.9	30.13	9	2	1	16	Light
194	9/17	1121	47°11'	85°19'	...	...	...	...	...	...	...	30.13	9	2	1	16	Light
195	9/17	1625	47°12'	85°33'	...	...	...	...	...	...	...	30.04	9	2	7	20	Fresh

Table 19.--Daily maximum and minimum temperatures (^{o}C.) recorded in 1951 by thermograph at Lake Superior and Ishpeming Railroad ore dock, Marquette, Michigan

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	...	...	...	...	...	...	...	...	6.1	3.4	6.7	5.6	8.4	7.2	18.4	17.2	15.0	14.5	...	...	5.0	3.4	2.2	1.1
2	...	...	...	...	...	...	...	...	5.0	3.4	6.1	6.1	8.9	7.8	18.4	8.9	14.5	11.7	...	...	3.9	2.8	2.2	1.1
3	...	...	...	...	...	...	...	...	5.0	3.4	6.7	6.1	11.1	8.9	16.1	15.0	15.0	14.5	10.0	7.8	3.4	2.2	2.8	2.2
4	...	...	...	...	...	...	...	...	4.5	2.2	6.7	6.1	11.1	10.0	16.7	15.6	15.0	12.8	8.9	7.8	3.4	2.2	2.8	2.2
5	...	...	...	...	...	...	...	...	2.2	1.7	6.7	6.1	12.2	10.6	16.7	15.0	14.5	12.8	9.5	8.9	3.9	2.2	2.2	1.7
6	...	...	...	...	...	...	...	...	2.8	1.7	6.7	5.6	12.8	11.7	17.2	15.0	13.9	12.2	8.9	8.4	3.4	2.2	2.2	1.7
7	...	...	...	...	...	...	...	...	3.4	2.2	7.8	6.1	13.9	8.9	15.6	13.4	13.4	12.2	8.9	7.8	3.4	2.2	2.8	1.7
8	...	...	...	...	...	...	...	...	6.7	3.9	8.9	6.7	12.8	6.1	15.6	10.6	13.9	12.8	7.8	7.2	2.8	2.2	2.2	1.7
9	...	...	...	...	...	...	...	...	5.6	4.5	8.9	6.1	13.4	7.8	14.5	12.8	14.5	12.8	8.4	7.8	3.4	1.7	2.2	1.7
10	...	...	...	...	...	...	2.2	1.1	6.1	3.9	7.2	5.0	12.8	8.4	15.6	13.9	13.9	12.8	9.5	7.8	3.4	2.2	2.2	1.1
11	...	...	...	...	...	...	1.1	0.6	4.5	3.9	6.7	5.6	13.9	12.2	15.6	15.0	13.9	11.7	8.4	7.2	3.9	2.8	2.2	1.7
12	...	...	...	...	...	...	1.7	0.6	5.6	3.9	7.2	6.1	13.9	12.2	15.6	14.5	...	...	8.4	7.8	4.5	2.2	2.8	1.7
13	...	...	...	...	...	...	1.1	0.0	5.6	3.9	7.8	6.7	13.9	13.4	16.1	15.6	...	...	...	...	...	...	2.2	1.1
14	...	...	...	...	...	...	0.6	0.0	6.1	5.6	8.9	7.8	15.6	13.4	16.7	15.0	...	...	...	...	...	...	2.2	1.7
15	...	...	...	...	...	...	0.6	0.0	6.7	4.5	9.5	6.1	15.6	14.5	16.7	14.5	...	...	...	...	...	...	2.2	1.7
16	...	...	...	...	...	...	1.7	0.6	5.0	4.5	...	...	15.6	15.6	16.1	15.6	...	...	...	...	...	...	2.8	1.7
17	...	...	...	...	...	...	1.1	0.0	5.6	4.5	...	...	16.7	15.6	16.7	15.6	...	...	...	...	...	...	2.8	1.1
18	...	...	...	...	...	...	0.6	0.0	7.8	5.0	...	...	16.1	10.6	17.2	15.6	...	...	...	...	...	...	...	...
19	...	...	...	...	...	...	0.6	0.0	8.4	6.1	...	...	15.0	14.5	17.2	15.6	13.9	12.8	7.8	7.2	...	...	...	...
20	...	...	...	...	...	...	2.2	0.0	7.8	5.0	7.2	5.0	16.1	14.5	16.7	15.6	14.5	12.8	7.8	6.7	...	...	...	...
21	...	...	...	...	...	...	1.7	0.6	5.6	5.0	6.7	5.6	17.2	12.2	16.7	14.5	13.9	12.2	7.2	6.7	1.7	0.6	...	...
22	...	...	...	...	...	...	2.2	0.6	5.6	4.5	6.7	5.6	15.6	12.8	15.6	14.5	12.8	12.2	7.8	6.7	2.2	1.1	...	...
23	...	...	...	...	...	...	2.8	0.6	6.7	5.6	6.7	5.6	16.1	15.0	16.7	15.0	13.4	11.7	...	...	2.2	1.7	...	...
24	...	...	...	...	...	...	2.8	1.1	8.4	6.1	7.2	5.6	16.7	15.0	16.7	15.0	12.8	12.2	...	...	2.2	0.6	...	...
25	...	...	...	...	...	...	2.2	1.1	8.9	5.6	7.2	6.7	15.6	13.4	17.2	14.5	...	...	...	...	1.7	1.1	...	...
26	...	...	...	...	...	...	2.8	1.1	9.5	6.7	8.4	6.1	16.7	14.5	16.1	7.2	12.8	11.7	...	...	1.7	1.1	...	...
27	...	...	...	...	...	...	3.4	1.7	7.2	6.1	10.0	6.1	17.2	15.6	...	...	11.7	6.7	...	...	1.7	1.1	...	...
28	...	...	...	...	...	...	5.0	1.7	8.9	6.7	10.0	5.6	19.5	16.1	16.1	14.5	7.2	6.1	...	...	1.1	0.6	...	...
29	...	...	...	...	...	...	4.5	3.4	6.7	6.1	9.5	6.1	19.5	15.0	15.6	12.2	8.4	7.2	...	...	1.1	0.6	...	...
30	...	...	...	...	...	...	5.6	1.7	6.7	5.6	8.4	5.6	18.9	12.2	16.7	15.0	...	...	...	...	1.7	0.6	...	...
31	...	...	...	...	...	...	...	...	6.7	5.6	...	...	17.8	12.8	16.7	14.5	...	...	6.1	3.9	...	...	...	...

Table 20.--Daily maximum and minimum temperatures (°C.) recorded in 1952 by thermograph at Lake Superior and Ishpeming Railroad ore dock, Marquette, Michigan

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	...	...	...	...	...	...	...	...	4.5	3.4	6.7	5.6	12.2	7.8	16.1	15.0	17.2	10.0	13.9	13.4	7.2	6.7	2.8	1.7
2	...	...	...	...	...	...	...	...	5.0	3.4	10.0	6.1	9.5	6.7	15.6	15.0	13.9	11.7	12.8	12.2	7.8	7.2	2.8	1.7
3	...	...	...	...	...	...	...	...	5.0	3.9	7.2	5.6	8.4	5.6	15.6	15.0	15.6	12.8	12.2	11.7	7.8	6.7	2.8	1.7
4	...	...	...	...	...	...	...	...	5.6	3.9	6.7	5.6	10.0	5.0	16.1	15.0	17.2	15.6	11.7	11.1	6.7	6.7	2.8	2.2
5	...	...	...	...	...	...	...	...	6.1	3.9	7.2	5.6	11.1	8.4	16.1	15.0	17.8	16.1	11.1	10.6	6.7	5.6	2.8	2.2
6	...	...	...	...	...	...	...	...	5.0	3.9	6.7	5.6	10.6	7.8	15.6	14.5	16.1	15.6	10.6	10.6	6.7	5.6	2.8	1.7
7	...	...	...	...	...	...	...	...	5.6	3.9	7.8	6.1	8.4	7.2	17.2	15.0	16.1	15.0	10.6	10.6	6.1	4.5	2.8	2.2
8	...	...	...	...	...	...	...	...	6.1	4.5	8.9	5.6	8.9	7.2	17.2	15.0	15.6	9.5	10.6	10.0	6.1	3.4	2.8	1.7
9	...	...	...	...	...	...	...	...	7.8	5.0	7.8	6.1	12.8	8.9	15.0	13.4	16.7	10.6	10.6	10.6	5.6	5.0	2.8	2.2
10	...	...	...	...	...	...	...	...	5.6	2.8	7.8	6.7	12.2	10.0	...	...	15.6	11.1	11.1	10.0	6.1	5.0	2.8	2.8
11	...	...	...	...	...	...	...	...	3.4	2.8	8.4	7.2	11.7	10.0	...	...	15.6	13.9	10.6	10.0	5.6	3.9	2.8	2.2
12	...	...	...	...	...	...	...	...	...	...	10.0	7.8	15.0	11.7	...	...	17.2	14.5	10.6	10.0	5.6	2.8	2.8	2.2
13	...	...	...	...	...	...	...	...	...	...	10.6	7.8	13.9	6.7	13.9	12.8	17.8	14.5	10.6	10.0	5.6	4.5	2.8	1.7
14	...	...	...	...	...	...	...	...	5.0	4.5	9.5	6.7	11.1	7.2	16.7	12.8	17.2	12.8	10.0	9.5	6.1	5.0	2.2	1.7
15	...	...	...	...	...	...	...	...	5.0	3.9	9.5	7.2	12.8	8.9	14.5	11.7	15.0	12.2	9.5	8.9	5.6	4.5	2.2	1.7
16	...	...	...	...	...	...	...	...	5.6	3.9	12.2	5.6	14.5	10.6	14.5	12.8	14.5	13.4	8.9	8.4	5.6	4.5	2.8	2.2
17	...	...	...	...	...	...	...	...	5.0	3.9	8.4	5.0	12.8	7.8	15.6	13.9	...	...	8.9	8.4	6.1	5.6	2.8	1.7
18	...	...	...	...	...	...	...	...	6.1	4.5	7.2	6.1	13.4	6.7	17.2	14.5	...	...	8.4	7.8	6.7	5.6	2.2	1.7
19	...	...	...	...	...	...	...	...	6.1	4.5	7.8	6.1	12.8	7.8	17.2	16.1	...	...	8.4	7.2	6.1	5.6	2.2	1.7
20	...	...	...	...	...	...	...	...	6.1	4.5	8.9	7.2	12.8	9.5	17.2	13.4	...	...	8.4	7.2	5.6	5.0	1.7	1.1
21	...	...	...	...	...	...	...	...	6.1	4.5	7.8	6.7	13.9	9.5	16.7	15.0	...	...	7.8	7.2	5.6	4.5	1.7	1.1
22	...	...	...	...	...	...	2.8	1.7	6.1	5.0	8.9	7.2	14.5	10.0	16.7	15.6	...	...	8.4	7.2	6.1	5.0	1.7	1.1
23	...	...	...	...	...	...	2.8	1.7	7.8	4.5	10.0	7.8	8.9	6.1	17.8	16.7	13.9	13.9	8.4	7.2	5.6	5.0	1.7	1.1
24	...	...	...	...	...	...	3.9	2.2	6.1	3.9	8.4	6.7	15.6	8.9	17.2	16.1	13.9	13.4	8.4	7.8	5.0	3.9	2.2	1.7
25	...	...	...	...	...	...	3.4	2.2	6.1	3.9	10.0	7.2	15.0	12.8	17.8	16.1	14.5	13.4	8.4	7.8	5.0	2.8	2.2	1.7
26	...	...	...	...	...	...	5.0	2.8	6.1	4.5	8.9	7.2	...	...	18.9	17.8	13.9	13.4	8.4	7.8	5.0	3.9	2.2	1.7
27	...	...	...	...	...	...	6.1	3.9	6.7	5.0	10.6	8.9	...	...	19.5	17.8	14.5	12.8	8.4	6.7	4.5	3.4	1.7	0.6
28	...	...	...	...	...	...	5.0	3.9	6.7	5.0	11.1	9.5	...	...	15.6	13.9	13.9	13.4	7.8	6.7	4.5	2.8	1.7	0.0
29	...	...	...	...	...	...	5.0	3.9	6.1	4.5	10.0	6.1	16.1	15.6	16.7	15.6	13.9	13.4	7.2	6.1	2.8	2.2	1.7	1.7
30	...	...	...	...	...	...	5.0	3.4	7.2	5.6	11.1	6.7	15.6	13.4	17.2	16.1	14.5	13.4	7.2	6.1	2.8	2.2	1.7	1.1
31	...	...	...	...	...	...	...	...	6.1	5.0	...	...	16.1	14.5	17.8	13.4	...	...	7.8	6.7	...	...	1.7	1.1

Table 21.--Daily maximum and minimum temperatures (°C.) recorded in 1953 by thermograph at Lake Superior and Ishpeming Railroad ore dock, Marquette, Michigan

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	1.7	0.6	0.0	0.0	0.0	0.0	1.7	0.6	3.4	2.2	...	...	10.0	8.4	16.7	15.0	...	...	...	...	...	...	...	...
2	1.7	1.7	0.0	0.0	0.6	0.0	2.2	1.1	3.9	2.8	...	...	10.0	7.8	17.2	16.1	...	...	...	...	...	...	...	...
3	1.7	1.1	0.6	0.0	0.6	0.0	2.2	1.1	4.5	2.8	7.8	5.0	12.2	8.9	17.8	11.7	...	...	...	...	...	...	...	...
4	1.7	1.1	0.0	0.0	0.0	0.0	1.7	1.1	4.5	3.4	...	...	13.4	10.0	17.2	10.0	...	...	...	...	...	...	...	...
5	1.1	0.6	0.0	0.0	0.0	0.0	1.1	0.6	4.5	3.4	...	...	10.0	7.8	15.0	8.9	...	...	...	...	...	...	...	...
6	2.2	0.6	0.6	0.0	0.0	0.0	1.7	0.6	4.5	3.9	...	...	11.7	10.0	15.6	10.0	...	...	...	...	...	...	...	...
7	...	...	0.6	0.0	0.0	0.0	2.8	1.1	5.6	3.9	...	...	11.7	10.0	10.0	7.8	...	...	...	...	...	...	...	...
8	...	...	...	...	0.0	0.0	2.2	1.1	6.7	3.9	...	...	11.7	10.0	13.9	7.8	...	...	...	...	...	...	...	...
9	...	...	...	...	0.6	0.0	2.2	1.1	5.6	4.5	...	...	11.7	10.6	15.0	10.6	...	...	...	...	...	...	...	...
10	...	...	0.0	0.0	0.6	0.0	1.7	1.1	8.4	5.6	7.2	5.6	12.2	10.6	15.6	10.6	...	...	...	...	...	...	...	...
11	...	...	0.0	0.0	0.6	0.0	1.1	1.1	7.8	5.0	8.4	5.6	14.5	11.1	13.9	11.7	...	...	...	...	...	...	...	...
12	...	...	0.0	0.0	0.0	0.0	1.1	1.1	5.6	4.5	7.2	5.6	14.5	12.2	13.9	10.6	...	...	...	...	...	...	...	...
13	1.1	0.6	0.0	0.0	0.0	0.0	2.2	1.1	5.6	3.9	7.2	5.6	13.4	12.2	13.9	11.7	...	...	...	...	...	...	...	...
14	0.6	0.6	0.0	0.0	0.0	0.0	4.5	1.7	6.1	4.5	7.8	6.1	12.8	11.7	16.1	12.2	...	...	...	...	...	...	...	...
15	0.6	0.6	0.0	0.0	0.0	0.0	3.9	1.7	7.2	5.0	9.5	7.8	13.9	11.7	18.4	15.0	...	...	...	...	...	...	...	...
16	0.6	0.0	0.0	0.0	1.1	0.0	3.4	1.7	6.7	5.0	7.8	5.0	17.2	10.6	18.4	16.1	...	...	...	...	...	...	...	...
17	0.6	0.0	0.0	0.0	1.1	0.0	1.7	1.7	6.1	4.5	6.7	5.0	12.8	10.6	17.2	16.7	...	...	...	...	...	...	...	...
18	1.1	0.0	0.0	0.0	0.6	0.0	1.1	1.1	5.0	3.9	7.8	6.1	16.7	10.0	17.2	16.7	...	...	...	...	...	...	...	...
19	1.1	0.6	0.0	0.0	0.6	0.0	1.1	1.1	7.8	3.9	7.8	6.1	16.1	10.0	17.8	17.2	...	...	...	...	...	...	...	...
20	...	...	0.0	0.0	0.6	0.0	1.7	0.6	6.1	4.5	9.5	6.1	13.4	9.5	17.8	17.2	...	...	...	...	...	...	...	...
21	...	...	0.0	0.0	0.6	0.0	3.4	1.1	6.7	4.5	8.4	6.1	18.4	10.0	18.4	17.8	...	...	...	...	...	...	...	...
22	...	...	0.0	0.0	1.7	0.6	3.9	2.2	4.5	4.5	7.2	6.1	9.5	8.9	19.5	17.2	...	...	...	...	...	...	...	...
23	...	...	0.6	0.0	1.7	1.1	3.9	2.2	6.1	3.9	7.8	6.7	13.9	9.5	19.5	17.8	...	...	...	...	...	...	...	...
24	...	...	0.6	0.6	1.1	0.6	3.9	2.2	6.1	4.5	10.0	7.8	15.0	12.2	19.5	17.2	...	...	...	...	...	...	...	...
25	...	...	0.6	0.0	1.1	0.0	4.5	2.2	7.8	5.0	10.0	6.7	15.0	11.7	18.9	17.8	...	...	...	...	...	...	...	...
26	...	...	1.1	0.0	0.6	0.0	2.2	1.7	6.1	5.0	8.4	6.1	13.9	11.7	19.5	17.8	...	...	...	...	...	...	...	...
27	0.0	0.0	1.1	0.0	0.6	0.0	2.2	1.7	5.6	5.0	7.8	6.1	13.4	11.7	20.0	17.8	...	...	...	...	...	...	...	...
28	0.0	0.0	0.0	0.0	1.1	0.6	3.9	1.7	6.1	5.0	8.4	7.2	16.7	11.1	19.5	18.4	...	...	...	...	...	...	...	...
29	0.0	0.0	...	...	1.1	0.6	3.4	1.7	8.4	6.1	10.6	8.4	13.4	8.4	...	...	...	...	...	...	...	...	...	...
30	0.6	0.0	...	...	1.7	0.6	3.9	2.8	7.2	5.6	10.0	8.4	16.7	12.2	...	...	...	...	...	...	...	...	...	...
31	0.0	0.0	...	...	1.7	0.6	...	...	6.7	5.6	...	...	16.7	12.8	21.1	19.5	...	...	...	...	...	...	...	...

Table 22.--Daily maximum and minimum temperatures (°C.) recorded in 1954 by thermograph at Lake Superior and Ishpeming Railroad ore dock, Marquette, Michigan

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	1.1	0.0	0.0	0.0	0.6	0.0	1.1	0.0	5.6	3.4	...	...	12.2	11.1	...	...	...	...	...	...	...	...	...	...
2	0.6	0.0	0.0	0.0	0.0	0.0	0.6	0.0	3.4	1.7	...	...	13.4	12.2	...	...	...	...	...	...	...	...	...	...
3	0.6	0.0	0.0	0.0	0.0	0.0	0.6	0.0	3.9	1.7	4.5	3.9	14.5	12.8	...	...	...	...	...	...	...	...	...	...
4	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9	2.2	4.5	3.9	13.9	12.8	...	...	...	...	...	...	...	...	...	...
5	1.1	0.0	0.0	0.0	0.0	0.0	1.7	0.0	3.4	2.8	4.5	3.9	15.0	12.8	...	...	...	...	...	...	...	...	...	...
6	1.1	1.1	0.0	0.0	0.6	0.0	2.2	0.6	3.9	2.8	5.6	3.9	13.9	13.4	...	...	...	...	...	...	...	...	...	...
7	1.1	0.6	0.0	0.0	0.6	0.0	2.8	1.1	3.4	1.7	8.9	5.6	15.0	13.4	...	...	...	...	...	...	...	...	...	...
8	0.0	0.0	0.0	0.0	0.6	0.0	1.7	0.6	3.4	1.7	7.2	5.0	16.1	13.4	...	...	...	...	...	...	...	...	...	...
9	0.0	0.0	0.0	0.0	1.1	0.0	2.2	0.6	3.9	2.2	8.9	5.0	16.7	13.4	...	...	...	...	...	...	...	...	...	...
10	0.0	0.0	0.0	0.0	1.1	0.0	2.2	1.1	3.9	2.2	5.6	4.5	17.8	12.8	...	...	...	...	...	...	...	...	...	...
11	0.0	0.0	0.0	0.0	0.6	0.0	2.2	1.7	3.4	2.2	6.1	4.5	13.4	11.1	...	...	...	...	...	...	...	...	...	...
12	0.0	0.0	0.0	0.0	0.0	0.0	3.9	1.7	3.4	2.2	6.7	5.0	14.5	7.2	...	...	...	...	...	...	...	...	...	...
13	0.0	0.0	0.0	0.0	0.0	0.0	4.5	2.2	4.5	3.4	6.7	5.0	13.9	9.5	...	...	...	...	...	...	...	...	...	...
14	0.6	0.0	0.0	0.0	0.0	0.0	5.0	3.4	7.2	3.9	8.9	5.0	13.9	9.5	...	...	...	...	...	...	...	...	...	...
15	0.6	0.0	0.6	0.0	0.0	0.0	4.5	2.2	6.1	4.5	7.2	5.0	15.0	13.9	...	...	...	...	...	...	...	...	...	...
16	0.0	0.0	1.1	0.0	0.6	0.0	4.5	2.2	5.6	3.9	11.1	8.4	17.2	14.5	...	...	...	...	...	...	...	...	...	...
17	0.0	0.0	1.7	0.0	1.1	0.0	3.9	2.2	4.5	3.4	11.1	7.8	16.7	15.0	...	...	...	...	...	...	...	...	...	...
18	0.0	0.0	2.8	0.6	0.6	0.0	3.9	1.7	4.5	3.4	12.2	6.7	17.2	14.5	...	...	...	...	...	...	...	...	...	...
19	0.0	0.0	2.2	0.6	0.0	0.0	3.9	1.7	5.0	3.9	6.7	6.7	18.9	16.1	...	...	...	...	...	...	...	...	...	...
20	0.0	0.0	1.1	0.6	0.0	0.0	3.9	2.2	5.6	4.5	11.1	6.7	17.8	16.7	...	...	...	...	...	...	...	...	...	...
21	0.0	0.0	1.1	0.6	0.6	0.0	2.8	2.8	6.7	4.5	7.2	6.7	18.4	17.2	...	...	...	...	...	...	...	...	...	...
22	0.0	0.0	0.6	0.0	0.0	0.0	2.8	1.1	6.1	4.5	8.4	6.7	19.5	18.4	...	...	...	...	...	...	...	...	...	...
23	0.0	0.0	1.7	0.0	0.6	0.0	3.4	1.1	7.2	5.0	13.4	8.4	19.5	18.4	...	...	...	...	...	...	...	...	...	...
24	0.0	0.0	1.1	0.6	1.1	0.0	3.9	2.8	6.7	5.6	12.8	8.9	19.5	18.4	...	...	...	...	...	...	...	...	...	...
25	0.0	0.0	1.1	0.0	0.6	0.0	3.9	2.2	...	...	8.9	7.2	20.0	17.2	...	...	...	...	...	...	...	...	...	...
26	0.0	0.0	1.1	0.0	0.6	0.0	...	...	...	...	9.5	7.2	...	...	...	...	...	...	...	...	...	...	...	...
27	0.0	0.0	1.1	0.6	0.6	0.0	3.9	1.1	...	...	9.5	8.4	...	...	...	...	...	...	...	...	...	...	...	...
28	0.0	0.0	0.6	0.6	0.6	0.0	3.9	2.2	...	...	12.2	8.9	...	...	...	...	...	...	...	...	...	...	...	...
29	0.0	0.0	...	...	0.6	0.0	5.6	3.4	...	...	12.2	11.1	...	...	...	...	...	...	...	...	...	...	...	...
30	0.0	0.0	...	...	0.6	0.0	4.5	3.4	...	...	12.2	10.6	...	...	...	...	...	...	...	...	...	...	...	...
31	0.0	0.0	...	...	1.1	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Table 23.--Daily maximum and minimum temperatures (°C.) recorded in 1955 by thermograph at Marquette water plant

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11.7	11.7	8.9	8.9	2.8	2.8
2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11.1	11.1	9.5	9.5	2.8	2.8
3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11.1	11.1	8.9	7.8	3.4	2.2
4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11.7	11.7	7.8	7.8	3.4	2.2
5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11.7	11.7	7.8	7.2	3.4	3.4
6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11.1	11.1	7.2	7.2	3.4	3.4
7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7.2	7.2	3.4	2.8
8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17.2	15.0	...	...	7.8	7.2	2.8	2.8
9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15.0	10.6	...	...	7.2	6.7	2.2	2.2
10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15.6	11.7	11.7	11.7	6.7	6.7	2.2	2.2
11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15.6	14.5	11.1	11.1	6.7	6.7	2.2	2.2
12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14.5	13.9	11.7	11.1	6.7	6.7	2.2	2.2
13	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14.5	13.4	11.7	11.7	7.2	7.2	2.2	2.2
14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13.9	9.5	11.1	11.1	7.2	6.7	2.2	2.2
15	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13.9	13.9	11.1	11.1	6.7	6.7	2.2	1.7
16	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13.9	11.7	11.1	10.6	6.7	6.1	2.2	1.7
17	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12.8	10.0	10.6	10.6	6.1	6.1	1.7	1.7
18	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12.8	9.5	10.6	10.6	6.1	6.1	1.1	1.1
19	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15.0	11.1	10.6	10.0	6.1	6.1	1.1	0.6
20	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15.0	15.0	10.6	10.0	6.1	5.6	0.6	0.6
21	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14.5	14.5	10.0	10.0	5.6	5.0	0.6	0.6
22	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13.9	10.6	10.0	10.0	5.0	4.5	1.1	0.6
23	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11.1	8.9	9.5	9.5	4.5	4.5	1.1	0.0
24	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12.2	7.8	9.5	9.5	4.5	4.5	0.6	0.6
25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12.8	12.8	8.9	8.9	4.5	4.5	0.6	0.0
26	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12.8	11.7	9.5	9.5	4.5	4.5	0.0	0.0
27	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12.2	11.1	9.5	9.5	4.5	3.9	0.6	0.6
28	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12.8	11.1	9.5	9.5	4.5	3.4	1.1	0.0
29	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12.2	12.2	9.5	9.5	3.4	2.8	1.1	1.1
30	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12.2	11.7	9.5	8.9	2.8	2.8	1.1	1.1
31	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8.9	8.9	...	...	1.1	1.1

Table 24. --Daily maximum and minimum temperatures (°C.) recorded in 1956 by thermograph at Marquette water plant

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	0.6	0.6	0.0	0.0	0.6	0.6	0.6	0.6	2.2	1.7	...	...	7.8	6.7	15.6	13.4	14.5	8.9	9.5	9.5	...	...	4.5	4.5
2	0.6	0.0	0.0	0.0	0.6	0.6	0.6	0.0	2.2	2.2	...	...	...	...	14.5	12.2	14.5	11.7	11.1	9.5	...	...	4.5	4.5
3	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	2.2	2.2	...	...	...	...	14.5	7.8	16.1	14.5	11.7	11.1	...	...	2.8	2.2
4	0.6	0.0	0.0	0.0	0.0	0.0	0.6	0.6	2.2	2.2	...	...	10.0	8.9	8.9	6.7	...	...	11.7	11.1	...	...	3.4	3.4
5	1.1	0.6	0.0	0.0	0.0	0.0	1.1	0.6	3.4	2.8	...	...	8.9	7.8	10.0	8.9	16.1	...	11.1	11.1	...	...	3.4	2.8
6	1.1	0.6	0.0	0.0	0.6	0.0	0.6	0.6	3.4	2.8	5.6	5.6	8.4	6.7	8.9	6.1	16.1	16.1	11.1	8.4	...	...	3.4	3.4
7	0.6	0.6	0.0	0.0	0.6	0.0	1.1	0.6	3.4	2.8	5.6	5.6	10.0	7.2	6.1	6.1	15.6	15.6	10.6	9.5	...	...	4.5	2.8
8	0.6	0.6	0.0	0.0	0.6	0.6	0.6	0.0	3.4	3.4	6.1	5.0	10.0	8.4	...	...	15.6	15.6	10.0	10.0	...	...	...	...
9	0.6	0.6	0.0	0.0	0.6	0.6	0.6	0.0	4.5	3.4	6.7	5.6	11.7	10.0	15.6	11.7	15.6	14.5	10.0	10.0	...	...	...	...
10	...	...	0.0	0.0	0.0	0.0	0.6	0.6	3.9	2.8	6.1	5.6	11.1	10.0	16.1	13.9	13.9	13.4	10.6	9.5	...	...	...	...
11	1.1	0.0	0.0	0.0	0.0	0.0	1.1	0.6	4.5	2.8	5.6	5.0	10.0	8.9	16.7	15.0	13.9	13.4	10.6	10.0	...	...	...	...
12	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.1	4.5	4.5	...	...	10.6	8.9	16.7	14.5	14.5	13.4	10.0	10.0	...	...	3.4	2.2
13	0.6	0.0	0.0	0.0	0.0	0.0	1.1	1.1	4.5	4.5	6.7	5.0	11.1	10.0	...	...	13.4	13.4	10.0	8.9	...	...	3.4	3.4
14	0.6	0.6	0.0	0.0	0.0	0.0	1.1	1.1	4.5	3.4	6.7	5.6	11.1	11.1	17.8	12.2	15.0	13.9	9.5	8.9	...	...	2.2	2.2
15	0.6	0.6	0.0	0.0	0.0	0.0	1.1	1.1	4.5	3.9	7.8	5.6	11.1	11.1	17.8	16.7	15.6	15.6	10.0	10.0	...	...	2.8	2.2
16	0.6	0.0	0.0	0.0	0.6	0.0	1.1	0.0	4.5	4.5	7.8	7.8	11.7	11.1	...	...	15.6	15.0	10.0	10.0	...	...	2.8	2.2
17	0.6	0.0	0.0	0.0	0.6	0.6	0.6	0.0	4.5	4.5	7.2	7.2	12.2	11.1	16.7	15.6	14.5	13.9	10.0	9.5	...	...	2.2	1.7
18	0.6	0.6	0.0	0.0	0.6	0.6	1.1	0.6	5.0	4.5	7.2	6.7	12.2	11.1	17.8	12.8	13.4	13.4	10.6	10.0	...	...	2.2	1.1
19	0.6	0.6	0.0	0.0	0.6	0.6	1.1	1.1	4.5	3.9	6.7	6.1	11.7	10.6	18.4	18.4	13.9	12.8	10.6	10.6	...	...	2.2	1.1
20	1.1	0.6	0.0	0.0	0.6	0.6	1.7	1.1	4.5	4.5	6.7	6.1	12.8	8.9	...	...	13.4	13.4	10.6	7.2	...	...	2.2	2.2
21	1.1	1.1	0.0	0.0	1.1	0.6	1.7	1.1	4.5	4.5	6.7	5.6	12.8	8.9	...	...	13.4	13.4	8.4	6.7	...	...	2.2	2.2
22	1.1	1.1	0.0	0.0	0.6	0.6	1.7	1.1	5.0	4.5	6.7	6.1	12.2	7.8	15.6	12.8	13.4	13.4	8.9	7.2	...	...	2.2	2.2
23	0.6	0.0	0.0	0.0	0.6	0.6	1.7	1.7	4.5	4.5	6.7	6.7	14.5	7.8	17.8	16.1	12.8	12.8	8.4	7.8	...	...	2.2	2.2
24	0.0	0.0	0.0	0.0	0.0	0.0	1.7	1.7	4.5	4.5	6.7	6.7	10.6	7.2	17.8	17.2	12.8	12.2	...	...	...	...	2.2	2.2
25	0.0	0.0	0.0	0.0	0.0	0.0	1.7	1.7	4.5	4.5	6.7	6.1	11.1	9.5	17.8	16.1	12.2	11.7	...	...	...	...	2.2	2.2
26	0.0	0.0	0.0	0.0	0.6	0.0	2.2	2.2	5.6	4.5	6.1	5.6	11.7	10.0	16.7	15.6	11.1	10.6	...	...	3.9	...	2.2	2.2
27	0.0	0.0	0.0	0.0	0.6	0.6	2.2	1.7	5.6	5.0	6.7	5.0	15.0	10.0	14.5	14.5	11.1	8.9	...	...	4.5	3.4	2.2	2.2
28	0.0	0.0	0.0	0.0	0.6	0.6	1.7	1.7	5.6	4.5	7.8	6.7	15.6	12.2	16.1	13.9	7.8	6.7	...	...	4.5	3.4	1.7	1.1
29	0.0	0.0	0.0	0.0	0.6	0.6	1.7	1.7	5.6	5.0	7.8	7.2	15.6	15.6	12.2	11.1	7.2	5.6	...	...	4.5	4.5	1.1	1.1
30	0.0	0.0	...	...	0.6	0.6	1.7	1.7	5.6	5.6	7.2	7.2	15.6	14.5	12.2	8.9	8.9	8.4	...	...	4.5	4.5	0.6	0.0
31	0.0	0.0	...	...	0.6	0.6	...	...	5.6	5.0	...	...	15.6	9.5	9.5	6.7	...	...	...	...	...	...	1.1	0.6

Table 25. --Daily maximum and minimum temperatures (°C.) recorded in 1957 by thermograph at Marquette water plant

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	1.7	1.1	0.0	0.0	0.0	0.0	0.6	0.6	3.4	3.4	6.1	5.0	11.1	11.1	10.0	8.9	11.7	9.5	12.2	12.2	8.9	8.9	...	...
2	1.1	1.1	0.0	0.0	0.0	0.0	0.6	0.6	4.5	3.4	6.1	5.6	11.1	8.9	10.0	7.8	12.8	10.0	12.2	12.2	8.9	8.9	...	...
3	1.1	1.1	0.0	0.0	0.0	0.0	0.6	0.6	4.5	2.8	6.1	5.6	11.1	8.4	17.8	9.5	16.7	13.4	12.2	12.2	8.9	8.9	...	...
4	1.7	0.6	0.0	0.0	0.6	0.0	0.6	0.6	3.9	3.4	6.1	6.1	11.1	8.9	18.4	15.0	16.1	16.1	12.2	11.1	8.9	8.9	...	...
5	1.1	1.1	0.0	0.0	0.6	0.6	0.6	0.6	3.9	3.9	6.1	6.1	10.6	8.9	18.4	17.8	16.1	16.1	11.7	11.7	8.9	8.9	...	...
6	1.7	1.1	0.0	0.0	0.6	0.6	0.6	0.0	4.5	3.9	6.7	6.1	10.6	10.0	18.4	16.7	16.1	12.8	11.7	10.6	8.4	8.4	...	...
7	1.7	1.1	0.0	0.0	0.0	0.0	0.0	0.0	5.0	3.9	6.1	6.1	10.6	8.9	16.7	13.9	16.1	15.6	11.1	10.0	8.4	8.4	...	...
8	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	5.0	4.5	6.1	6.1	11.1	10.0	17.2	10.0	15.6	15.6	11.7	11.1	8.4	8.4	...	...
9	...	...	0.0	0.0	0.6	0.0	0.6	0.6	5.0	3.9	5.6	5.0	12.8	11.1	16.7	10.0	15.6	10.0	11.7	11.7	7.8	7.2	...	...
10	...	...	0.0	0.0	0.6	0.6	0.6	0.6	4.5	4.5	5.6	5.0	12.8	11.1	16.1	13.4	12.8	9.5	11.7	11.7	7.2	7.2	...	...
11	0.6	0.6	0.0	0.0	0.6	0.6	0.6	0.6	4.5	4.5	5.6	5.0	11.1	9.5	17.8	11.7	12.8	10.6	11.1	11.1	7.2	6.7	...	...
12	0.6	0.0	0.0	0.0	0.6	0.6	0.6	0.6	4.5	4.5	6.7	6.7	8.9	7.8	18.4	14.5	13.4	10.0	11.1	11.1	6.7	6.7	...	...
13	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	4.5	4.5	6.7	6.1	10.0	8.4	15.6	6.1	15.0	11.1	11.1	11.1	6.7	6.7	...	...
14	0.0	0.0	0.0	0.0	0.6	0.6	1.1	0.6	4.5	3.4	6.1	5.6	12.2	9.5	10.6	6.7	15.0	15.0	11.1	11.1	7.2	6.7	...	...
15	0.0	0.0	0.0	0.0	0.6	0.6	1.1	1.1	4.5	2.8	6.1	5.0	11.7	10.0	12.2	6.7	15.0	11.1	11.1	11.1	...	...	...	...
16	0.0	0.0	0.0	0.0	0.0	0.0	1.7	1.1	4.5	4.5	5.6	5.6	10.0	7.8	16.7	11.7	15.0	10.0	11.1	11.1	6.7	6.7	...	...
17	0.0	0.0	0.0	0.0	0.0	0.0	1.7	1.7	5.0	4.5	6.1	6.1	8.4	6.1	17.2	16.1	15.0	14.5	11.1	11.1	6.7	6.1	...	...
18	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.1	5.0	4.5	6.1	5.6	6.1	5.6	...	...	13.9	11.7	11.1	10.6	6.1	6.1	...	...
19	0.0	0.0	0.0	0.0	0.0	0.0	2.2	1.7	5.0	4.5	7.2	5.6	5.6	5.0	...	...	13.4	8.9	10.6	10.6	6.7	6.1	...	...
20	0.0	0.0	0.0	0.0	0.6	0.0	3.4	2.2	4.5	4.5	7.2	7.2	6.7	6.1	17.8	16.7	13.9	13.4	10.6	10.6	6.1	5.6	...	...
21	0.0	0.0	0.0	0.0	0.6	0.6	3.4	2.2	5.6	4.5	7.2	6.7	7.8	6.1	17.8	15.0	13.9	13.9	10.6	10.6	6.1	5.6	...	...
22	0.0	0.0	...	...	0.6	0.6	2.8	2.8	6.1	5.6	6.7	6.7	8.9	6.7	15.6	15.0	13.9	12.2	10.6	10.6	5.6	5.6	...	...
23	0.0	0.0	...	...	0.6	0.6	3.4	2.8	5.6	5.6	8.4	6.1	12.8	8.9	11.1	6.7	13.9	12.2	10.0	10.0	5.6	4.5	...	...
24	0.0	0.0	...	...	0.6	0.6	3.4	2.8	5.6	5.0	8.4	8.4	11.7	8.9	13.4	9.5	13.4	13.4	...	...	5.0	4.5	...	...
25	0.0	0.0	...	...	0.6	0.6	4.5	3.4	5.0	4.5	8.9	8.9	10.6	7.8	15.0	12.8	13.4	13.4	8.9	8.9	4.5	4.5	...	...
26	0.0	0.0	0.0	0.0	0.6	0.6	4.5	3.4	5.0	5.0	8.9	7.8	9.5	6.7	16.1	7.8	12.8	12.8	8.9	8.9	4.5	4.5	...	...
27	0.0	0.0	0.0	0.0	0.6	0.6	3.4	2.8	5.6	5.0	8.4	7.8	8.4	7.2	16.7	16.1	12.8	12.8	8.9	8.9	4.5	4.5	...	...
28	0.0	0.0	0.0	0.0	0.6	0.6	3.9	3.4	5.0	5.0	9.5	8.9	8.4	7.8	16.1	13.4	12.2	12.2	8.9	8.9	4.5	4.5	...	...
29	0.0	0.0	...	...	0.6	0.6	3.9	3.4	5.6	5.6	11.1	7.8	8.9	7.8	13.4	10.6	12.2	11.1	8.9	8.9	4.5	3.9	...	...
30	0.0	0.0	...	...	0.6	0.6	3.4	3.4	5.6	5.6	11.1	9.5	11.1	9.5	12.8	9.5	12.2	10.0	8.9	8.9	3.9	3.9	...	...
31	...	...	...	...	0.6	0.6	...	...	5.6	5.0	...	...	...	...	12.2	10.0	...	...	8.9	8.9	...	...	...	...

Table 26.--Daily maximum and minimum temperatures (°C.) recorded in 1952 by thermograph at Stannard Rock lighthouse

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10.6	9.5	12.8	12.2	...	...	...	...	...	...
2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11.1	8.4	12.2	11.7	...	...	...	...	...	...
3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11.7	8.4	12.2	11.1	...	...	...	...	...	...
4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11.1	10.0	12.8	11.1	...	...	...	...	...	...
5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10.0	8.9	11.7	10.6	...	...	6.7	5.0	...	...
6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10.6	9.5	10.6	8.9	...	...	5.0	3.9	...	...
7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11.1	9.5	10.6	9.5	...	...	3.9	3.9	...	...
8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10.6	9.5	10.6	9.5	...	...	4.5	4.5	...	...
9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10.6	8.9	10.0	8.9	...	...	4.5	4.5	...	...
10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11.1	10.0	11.7	10.0	...	...	5.6	4.5	...	...
11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10.6	8.9	12.2	9.5	...	...	5.0	4.5	...	...
12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11.7	10.0	12.8	10.0	...	...	6.1	4.5	...	...
13	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13.4	11.1	12.8	10.0	...	...	5.6	5.0	...	...
14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13.4	11.1	12.8	11.1	...	...	6.1	5.6	...	...
15	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12.8	11.7	11.7	10.6	...	...	6.1	4.5	...	...
16	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12.8	11.7	10.6	10.6	...	...	5.0	4.5	...	...
17	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12.8	11.7	10.6	9.5	...	...	4.5	4.5	...	...
18	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13.4	11.7	10.0	9.5	...	...	5.6	4.5	...	...
19	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13.4	11.1	9.5	8.9	...	...	6.1	5.6	...	...
20	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15.0	12.8	9.5	8.9	...	...	6.1	6.1	...	...
21	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13.9	10.0	9.5	8.9	...	...	6.1	5.0	...	...
22	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9.5	8.9	...	...	5.6	4.5	...	...
23	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10.0	8.9	...	...	4.5	4.5	...	...
24	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10.0	9.5	...	...	5.6	4.5	...	...
25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12.2	11.1	9.5	7.8	...	...	6.1	5.0	...	...
26	...	...	...	...	...	...	...	...	...	...	...	...	12.2	9.5	13.9	11.7	7.8	3.4	...	...	5.0	5.0	...	...
27	...	...	...	...	...	...	...	...	...	...	...	...	11.7	10.6	13.9	12.2	6.1	5.0	...	...	4.5	4.5	...	...
28	...	...	...	...	...	...	...	...	...	...	...	...	11.7	10.0	13.9	12.2	6.1	5.0	...	...	4.5	3.9	...	...
29	...	...	...	...	...	...	...	...	...	...	...	...	11.1	9.5	12.8	11.7	6.1	4.5	...	...	3.9	3.9	...	...
30	...	...	...	...	...	...	...	...	...	...	...	...	11.1	8.9	12.2	11.7	6.7	4.5	...	...	...	...	...	...
31	...	...	...	...	...	...	...	...	...	...	...	...	11.7	10.0	...	...	...	...	...	...	...	...	...	...

Table 27. --Daily maximum and minimum temperatures (°C.) recorded in 1953 by thermograph at Stannard Rock lighthouse

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	...	...	...	...	...	...	...	...	...	...	...	...	6.1	5.0	12.8	10.6	20.0	18.9	10.0	10.0	7.8	7.2	...	...
2	...	...	...	...	...	...	...	...	...	...	...	...	6.1	5.0	12.2	11.1	19.5	19.5	10.0	10.0	7.2	6.7	...	...
3	...	...	...	...	...	...	...	...	...	...	...	...	7.2	5.0	12.2	11.1	19.5	17.8	10.0	9.5	6.7	5.6	...	...
4	...	...	...	...	...	...	...	...	...	...	...	...	7.2	5.6	12.2	11.1	17.8	16.7	10.0	9.5	5.6	5.6	...	...
5	...	...	...	...	...	...	...	...	...	...	...	...	7.8	7.2	12.8	11.1	16.7	15.6	9.5	8.9	7.2	5.6	...	...
6	...	...	...	...	...	...	...	...	...	...	...	...	7.8	7.2	12.8	11.1	15.6	15.6	8.9	7.8	7.2	7.2	...	...
7	...	...	...	...	...	...	...	...	...	...	...	...	7.8	7.2	13.4	11.7	15.6	15.0	8.9	8.4	7.2	5.6	...	...
8	...	...	...	...	...	...	...	...	...	...	...	...	7.8	7.2	13.4	12.2	15.6	15.0	8.9	8.9	5.6	5.6	...	...
9	...	...	...	...	...	...	...	...	...	...	...	...	8.9	7.8	13.9	12.8	15.6	15.0	8.9	8.4	5.6	5.0	...	...
10	...	...	...	...	...	...	...	...	...	...	...	...	8.4	8.4	15.0	12.2	15.6	15.6	8.9	8.9	6.1	5.6	...	...
11	...	...	...	...	...	...	...	...	...	...	3.4	3.4	10.6	8.4	15.0	13.9	15.6	15.0	8.9	8.9	6.7	5.6	...	...
12	...	...	...	...	...	...	...	...	...	...	3.9	3.4	10.0	8.4	16.7	15.0	...	...	9.5	8.9	6.7	5.6	...	...
13	...	...	...	...	...	...	...	...	...	...	4.5	3.4	10.0	8.9	16.7	16.1	...	...	10.0	8.9	6.1	5.6	...	...
14	...	...	...	...	...	...	...	...	...	...	4.5	3.4	10.6	9.5	16.7	16.1	...	...	10.0	10.0	6.7	5.6	...	...
15	...	...	...	...	...	...	...	...	...	...	4.5	3.9	12.8	9.5	16.7	16.1	...	...	10.0	9.5	6.7	6.7	...	...
16	...	...	...	...	...	...	...	...	...	...	3.9	3.9	12.8	10.0	16.1	15.6	8.9	8.4	8.9	8.9	6.7	5.6	...	...
17	...	...	...	...	...	...	...	...	...	...	5.0	3.9	13.4	10.0	16.1	15.0	9.5	8.9	9.5	8.9	6.7	6.1	...	...
18	...	...	...	...	...	...	...	...	...	...	4.5	3.9	13.9	11.7	16.1	15.0	11.7	8.9	9.5	9.5	6.7	6.1	...	...
19	...	...	...	...	...	...	...	...	...	...	5.0	3.9	15.6	12.2	17.2	16.1	12.8	10.6	9.5	8.9	6.7	5.6	...	...
20	...	...	...	...	...	...	...	...	...	...	4.5	3.9	14.5	12.2	17.2	15.0	12.8	10.0	9.5	8.9	5.6	5.0	...	...
21	...	...	...	...	...	...	...	...	...	...	4.5	3.9	15.0	13.4	17.2	15.6	12.2	10.6	9.5	9.5	5.6	5.0	...	...
22	...	...	...	...	...	...	...	...	...	...	3.9	3.9	15.6	14.5	18.9	16.1	10.0	10.0	9.5	8.9	6.1	5.6	...	...
23	...	...	...	...	...	...	...	...	...	...	5.6	3.9	15.0	10.6	17.8	15.6	11.1	10.0	9.5	7.8	5.6	5.0	...	...
24	...	...	...	...	...	...	...	...	...	...	4.5	4.5	12.2	10.6	17.8	15.6	11.7	10.0	8.4	7.2	5.0	4.5	...	...
25	...	...	...	...	...	...	...	...	...	...	5.0	4.5	11.7	10.0	18.4	16.7	11.7	10.0	8.9	8.4	5.6	4.5	...	...
26	...	...	...	...	...	...	...	...	...	...	4.5	4.5	12.2	10.0	18.9	16.1	10.0	10.0	8.4	7.8	4.5	4.5	...	...
27	...	...	...	...	...	...	...	...	...	...	4.5	4.5	12.2	8.9	18.9	16.1	10.6	10.0	7.8	7.2	4.5	4.5	...	...
28	...	...	...	...	...	...	...	...	...	...	5.6	4.5	11.7	8.9	20.6	16.7	10.0	10.0	8.4	7.8	...	...	...	...
29	...	...	...	...	...	...	...	...	...	...	6.1	4.5	12.8	10.6	18.9	18.9	10.6	10.0	7.8	7.8	...	...	...	...
30	...	...	...	...	...	...	...	...	...	...	...	...	14.5	10.0	20.0	18.4	10.0	10.0	7.8	6.7	...	...	...	...
31	...	...	...	...	...	...	...	...	...	...	...	...	13.4	11.1	20.0	18.9	...	...	7.2	6.7	...	...	...	...

Table 28.--Daily maximum and minimum temperatures (°C.) recorded in 1953 by thermograph at Calumet and Hecla water plant

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	...	...	...	...	...	...	...	...	2.8	2.2	7.2	4.5	10.0	8.4	15.6	9.5	25.0	22.2	12.8	12.2	6.7	6.7	3.9	3.4
2	...	...	...	...	...	...	...	...	3.9	2.2	8.4	6.1	12.2	8.9	10.0	6.1	23.4	21.1	13.4	12.8	7.2	6.7	3.9	2.8
3	...	...	...	...	...	...	...	...	4.5	3.4	8.4	6.1	12.2	10.6	6.1	6.1	23.9	20.0	13.9	13.4	7.2	6.1	3.9	3.4
4	...	...	...	...	...	...	...	...	4.5	3.4	7.2	6.1	13.4	11.1	6.1	5.6	20.0	18.9	13.4	13.4	6.1	5.0	4.5	3.4
5	...	...	...	...	...	...	...	...	6.1	3.9	7.2	6.7	13.4	12.2	9.5	5.6	19.5	17.8	13.4	12.2	6.7	5.0	2.8	2.2
6	...	...	...	...	...	...	...	...	6.7	5.6	7.8	6.7	14.5	13.4	6.1	6.1	18.9	17.2	12.2	6.1	6.7	5.6	2.8	2.2
7	...	...	...	...	...	...	...	...	7.2	5.6	8.9	7.2	14.5	13.4	10.6	6.1	18.4	16.1	6.1	5.6	6.1	5.0	3.4	2.2
8	...	...	...	...	...	...	...	...	7.2	5.0	7.8	6.7	13.9	12.8	12.8	9.5	19.5	17.8	9.5	5.6	6.7	5.6	2.8	1.7
9	...	...	...	...	...	...	...	...	7.2	6.1	7.8	6.7	13.9	12.2	12.8	8.9	18.4	17.8	9.5	8.4	6.7	6.1	2.2	1.7
10	...	...	...	...	...	...	...	...	7.2	5.6	8.4	7.8	14.5	12.2	12.8	7.2	17.8	16.7	8.4	6.7	6.7	5.6	2.2	1.7
11	...	...	...	...	...	...	...	...	7.2	6.1	...	...	13.9	12.8	13.4	8.4	18.9	17.8	7.8	6.7	6.1	6.1	2.2	1.7
12	...	...	...	...	...	...	...	...	6.1	3.4	...	...	14.5	12.2	13.9	11.7	18.4	12.2	7.8	6.7	6.1	6.1	1.7	1.1
13	...	...	...	...	...	...	...	...	4.5	3.4	...	...	13.9	13.4	15.0	12.8	12.2	7.2	7.2	6.1	6.1	6.1	1.1	1.1
14	...	...	...	...	...	...	...	...	5.0	3.9	...	...	14.5	13.4	16.7	15.0	10.6	6.1	7.8	7.2	6.1	6.1	1.7	0.6
15	...	...	...	...	...	...	...	...	5.6	3.9	...	...	14.5	12.8	17.2	16.1	10.6	10.0	8.4	7.8	6.1	5.6	0.6	0.0
16	...	...	...	...	...	...	...	...	6.7	3.9	11.7	7.8	15.0	12.2	17.8	16.7	10.0	8.9	8.9	7.8	6.7	6.1	0.0	0.0
17	...	...	...	...	...	...	...	...	6.7	5.6	10.6	6.7	16.1	13.4	17.8	16.7	10.0	7.2	9.5	8.9	6.7	6.1	0.0	0.0
18	...	...	...	...	...	...	...	...	6.7	5.0	10.0	6.7	17.2	14.5	17.8	16.7	9.5	7.2	10.0	9.5	6.7	6.7	0.0	0.0
19	...	...	...	...	...	...	...	...	7.2	6.1	...	...	18.4	16.7	18.4	17.2	12.2	9.5	10.0	9.5	6.7	6.7	0.0	0.0
20	...	...	...	...	...	...	...	...	6.1	6.1	...	...	18.4	12.2	17.8	16.7	12.2	11.7	10.6	10.0	6.7	6.1	0.0	0.0
21	...	...	...	...	...	...	2.2	0.6	6.1	5.6	...	...	16.1	11.7	18.4	17.2	12.2	11.7	11.1	10.0	6.1	5.6	0.0	0.0
22	...	...	...	...	...	...	2.8	2.2	6.1	5.0	...	...	17.8	16.1	18.9	17.8	12.8	11.7	10.6	10.0	5.6	5.6	0.0	0.0
23	...	...	...	...	...	...	3.4	2.2	7.2	5.6	11.1	9.5	17.2	16.7	19.5	18.4	13.4	12.2	10.0	9.5	5.6	5.0	0.0	0.0
24	...	...	...	...	...	...	2.2	1.7	7.2	6.1	10.0	8.9	17.8	16.1	19.5	18.4	13.4	12.8	9.5	6.7	5.6	4.5	0.0	0.0
25	...	...	...	...	...	...	2.8	1.7	6.7	5.0	10.6	10.0	16.7	16.1	20.6	18.9	13.4	12.8	6.7	5.6	4.5	3.9	0.0	0.0
26	...	...	...	...	...	...	1.7	1.1	6.7	5.0	12.2	10.0	17.2	16.1	21.1	20.0	12.8	12.2	7.8	6.7	3.9	3.4	0.0	0.0
27	...	...	...	...	...	...	1.7	0.6	7.8	6.7	11.7	10.6	17.2	15.0	21.1	20.6	12.8	12.2	7.8	7.2	3.4	2.8	0.0	0.0
28	...	...	...	...	...	...	2.8	1.1	7.2	6.1	12.2	11.1	17.2	16.7	21.1	21.1	12.8	12.2	7.8	7.8	3.4	2.2	0.0	0.0
29	...	...	...	...	...	...	3.4	2.2	6.7	5.0	13.4	10.6	17.8	16.1	21.7	20.6	12.8	12.2	7.8	7.2	3.4	2.8	0.0	0.0
30	...	...	...	...	...	...	2.8	2.2	5.6	4.5	12.2	10.0	18.4	17.2	21.7	21.1	13.4	12.8	7.8	7.2	3.4	3.4	0.0	0.0
31	...	...	...	...	...	...	...	...	5.0	4.5	...	...	18.4	15.6	25.0	21.1	...	...	7.2	7.2	...	...	0.0	0.0

Table 29.--Daily maximum and minimum temperatures (°C.) recorded in 1954 by thermograph at Calumet and Hecla water plant

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	3.4	6.7	6.1	15.0	13.9	19.5	18.4	12.2	10.0	...	...	...	...	...	...
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	3.4	6.7	5.6	15.0	13.4	...	...	14.5	12.2	...	...	...	...	...	...
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9	2.2	6.7	5.6	14.5	11.1	...	...	15.6	13.9	...	...	...	...	...	...
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	2.2	7.2	5.6	13.9	10.6	19.5	19.5	15.0	14.5	...	...	...	...	...	...
5	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	2.8	1.7	8.9	6.7	15.6	13.4	20.0	18.9	15.6	14.5	...	...	...	...	...	...
6	0.0	0.0	0.0	0.0	0.0	0.0	1.7	1.1	3.4	2.2	9.5	6.1	15.0	14.5	20.0	19.5	15.6	14.5	...	...	...	...	...	...
7	1.1	0.0	0.0	0.0	0.0	0.0	1.1	0.0	3.4	2.8	7.8	5.6	15.0	13.4	20.6	18.9	15.6	15.0	...	...	...	...	...	...
8	1.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0	3.4	2.2	8.9	5.6	17.8	13.4	20.0	20.0	15.0	13.4	...	...	...	...	...	...
9	0.6	0.0	0.0	0.0	0.0	0.0	0.6	0.0	3.4	2.8	9.5	8.4	17.8	11.7	20.6	18.9	14.5	13.4	...	...	...	...	...	...
10	0.6	0.0	0.0	0.0	0.0	0.0	1.1	0.0	4.5	3.4	10.6	8.4	12.2	8.4	18.9	16.7	14.5	13.4	...	...	...	...	...	...
11	0.6	0.0	0.0	0.0	0.0	0.0	1.1	0.0	4.5	3.4	8.4	7.8	12.2	8.9	17.2	15.6	13.9	8.9	...	...	...	...	...	...
12	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	4.5	3.4	8.9	7.2	15.0	8.9	17.8	16.1	...	...	...	...	...	...	...	...
13	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	5.6	3.9	10.0	8.4	15.6	14.5	18.4	17.2	...	...	...	...	...	...	...	...
14	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.6	6.1	4.5	10.6	8.4	16.7	15.6	18.9	17.2	8.4	6.1	...	...	...	...	...	...
15	0.0	0.0	0.0	0.0	0.6	0.0	1.7	1.1	6.1	4.5	10.0	8.4	18.4	16.7	19.5	18.4	8.4	5.6	...	...	...	...	...	...
16	0.0	0.0	0.0	0.0	0.6	0.0	1.7	1.7	7.2	6.1	10.0	10.0	18.4	16.7	...	...	6.7	5.6	...	...	...	...	...	...
17	0.0	0.0	0.0	0.0	0.6	0.0	2.2	1.7	7.2	6.1	11.1	9.5	18.9	16.7	...	...	6.1	6.1	...	...	...	...	...	...
18	0.0	0.0	0.0	0.0	1.1	0.0	2.8	1.7	7.2	5.6	11.7	10.6	18.9	17.8	...	...	6.1	6.1	...	...	...	...	...	...
19	0.0	0.0	0.0	0.0	1.1	0.6	3.4	2.8	7.2	5.0	11.7	10.6	19.5	17.8	...	...	7.2	5.6	...	...	...	...	...	...
20	0.0	0.0	0.0	0.0	0.6	0.0	3.9	2.8	6.1	5.0	12.2	9.5	19.5	17.2	...	...	6.7	6.1	...	...	...	...	...	...
21	0.0	0.0	0.0	0.0	0.6	0.0	3.9	2.2	7.2	6.1	11.7	10.6	18.9	14.5	...	...	6.7	6.7	...	...	...	...	...	...
22	0.0	0.0	0.0	0.0	0.6	0.0	3.9	2.8	7.2	6.1	12.2	11.1	15.6	7.8	...	...	7.2	6.7	...	...	...	...	...	...
23	0.0	0.0	0.0	0.0	1.1	0.0	4.5	2.8	5.6	5.6	13.4	11.7	17.2	6.7	...	...	7.8	7.2	...	...	...	...	...	...
24	0.0	0.0	0.0	0.0	1.1	0.0	3.9	2.8	7.8	5.6	13.9	11.7	16.7	13.4	...	...	7.8	7.8	...	...	...	...	...	...
25	0.0	0.0	0.0	0.0	1.7	1.1	3.9	3.4	7.8	6.7	13.4	12.2	18.9	13.4	...	...	9.5	7.8	...	...	...	...	...	...
26	0.0	0.0	0.0	0.0	1.1	0.0	3.4	2.8	7.8	6.7	14.5	12.2	20.0	18.4	...	...	10.6	9.5	...	...	...	...	...	...
27	0.0	0.0	0.0	0.0	0.6	0.0	2.8	2.8	6.7	6.1	14.5	11.1	20.0	17.2	...	...	10.6	10.0	...	...	...	...	...	...
28	0.0	0.0	0.0	0.0	0.6	0.0	3.4	2.2	6.7	5.0	11.1	8.9	18.9	17.2	12.2	6.7	...	...	...	...	...	...	...	...
29	0.0	0.0	...	...	0.0	0.0	4.5	3.4	6.7	5.0	13.9	10.0	20.0	16.7	11.7	9.5	...	...	...	...	...	...	...	...
30	0.0	0.0	...	...	0.0	0.0	4.5	3.4	7.2	6.7	15.6	12.8	20.0	18.4	11.1	6.1	...	...	...	...	...	...	...	...
31	0.0	0.0	...	...	0.0	0.0	...	...	6.7	6.1	...	...	18.9	17.8	...	...	...	...	...	...	...	...	...	...

Table 30.--Daily maximum and minimum temperatures (°C.) recorded in 1955 by thermograph at Calumet and Hecla water plant

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	...	...	...	...	...	...	...	...	5.6	5.0	8.9	7.2	17.8	14.5	15.0	12.2	19.5	18.4	11.7	11.7	7.8	6.7	2.2	1.1
2	...	...	...	...	0.0	0.0	...	...	5.6	3.9	8.4	8.4	17.8	15.6	15.0	12.8	20.0	18.9	12.2	11.1	7.8	6.7	1.1	0.6
3	...	...	...	...	0.0	0.0	...	...	6.1	4.5	8.4	7.2	17.2	15.6	17.2	13.4	21.1	19.5	11.7	11.7	6.7	5.6	0.6	0.6
4	...	...	...	...	0.0	0.0	...	...	7.2	5.6	8.9	7.2	18.4	16.7	18.9	15.0	21.1	20.0	11.7	11.7	6.7	5.6	1.1	0.6
5	...	...	...	...	0.0	0.0	...	...	7.2	5.0	8.9	7.8	18.9	17.8	19.5	13.9	21.1	20.0	11.7	8.4	6.7	6.7	1.1	0.6
6	...	...	...	...	0.0	0.0	...	...	6.1	4.5	8.9	6.7	20.0	17.2	19.5	14.5	21.1	20.0	12.8	8.4	6.7	6.7	1.7	1.1
7	...	...	...	...	0.0	0.0	...	...	6.7	5.0	11.7	8.9	18.4	16.7	18.9	11.1	18.9	18.9	12.2	11.7	6.1	6.1	1.7	1.1
8	...	...	...	...	0.0	0.0	...	...	6.7	5.6	11.1	7.8	19.5	16.1	18.4	10.6	18.9	17.8	11.7	11.1	6.1	6.1	1.1	1.1
9	...	...	...	...	0.0	0.0	...	...	6.7	6.1	10.6	8.4	20.0	19.5	16.7	11.1	17.8	17.2	12.2	11.7	6.1	6.1	1.1	1.1
10	...	...	...	...	0.0	0.0	...	...	6.7	5.6	10.0	6.7	18.9	15.0	18.4	16.1	17.2	15.0	13.4	12.2	6.1	5.6	1.1	0.0
11	...	...	...	...	0.0	0.0	...	...	7.8	6.7	6.7	6.7	15.0	9.5	18.9	17.8	15.0	13.9	13.4	13.4	5.6	5.6	0.0	0.0
12	...	...	...	...	0.0	0.0	...	...	7.2	6.1	6.7	6.1	10.6	7.2	20.0	18.4	15.6	13.9	13.4	12.8	5.6	5.6	1.7	0.6
13	0.0	0.0	...	...	0.0	0.0	2.2	1.1	6.7	5.6	7.8	5.6	18.4	7.8	20.6	18.9	15.6	14.5	12.2	11.1	5.6	5.6	0.6	0.0
14	0.6	0.0	...	...	0.0	0.0	1.1	0.6	6.7	5.6	8.9	6.7	18.9	15.6	21.1	18.9	15.6	15.6	11.1	11.1	5.6	4.5	0.6	0.0
15	0.0	0.0	...	...	0.0	0.0	0.6	0.6	8.9	5.6	11.1	7.8	17.8	17.8	22.2	18.9	14.5	14.5	11.1	11.1	5.6	4.5	0.0	0.0
16	0.0	0.0	...	...	0.0	0.0	0.6	0.6	8.9	6.7	11.1	8.9	17.2	13.4	22.2	21.7	15.6	14.5	10.6	10.6	5.6	4.5	0.0	0.0
17	0.0	0.0	...	...	0.0	0.0	2.8	1.1	6.7	5.0	10.0	8.4	18.4	13.4	21.7	21.7	15.0	14.5	11.1	11.1	4.5	3.9	0.0	0.0
18	0.0	0.0	...	...	0.0	0.0	2.8	2.2	7.8	5.0	11.7	8.4	18.4	6.7	23.4	21.1	15.6	13.9	10.6	10.0	3.9	3.4	...	...
19	0.6	0.0	...	...	0.0	0.0	2.2	1.1	8.4	7.2	13.9	10.0	6.7	6.7	23.4	22.8	16.7	15.6	10.6	9.5	4.5	3.4	...	...
20	1.1	0.0	...	...	0.0	0.0	2.8	1.7	7.2	5.6	15.6	12.8	15.6	8.4	22.8	21.7	16.1	15.6	10.0	10.0	4.5	3.9	...	...
21	1.1	0.6	...	...	0.0	0.0	3.4	2.8	6.1	6.1	15.6	14.5	18.9	12.2	23.4	22.2	13.9	7.8	10.0	8.4	3.4	2.2	...	...
22	0.6	0.0	...	...	...	...	3.9	2.2	8.9	6.1	14.5	14.5	20.0	17.8	22.8	22.2	10.0	7.2	8.9	7.8	3.4	2.2	0.0	0.0
23	0.0	0.0	...	...	...	...	2.8	2.2	7.8	6.7	14.5	14.5	20.6	18.9	22.2	22.2	12.2	10.0	8.9	8.4	3.4	3.4	0.0	0.0
24	0.0	0.0	...	...	...	...	2.2	2.2	7.8	7.2	15.0	12.8	21.1	18.9	22.2	21.1	12.2	12.2	8.4	7.2	2.8	1.1	0.0	0.0
25	0.0	0.0	...	...	...	...	3.9	2.2	8.4	7.2	14.5	12.8	21.1	20.0	22.8	21.7	12.2	12.2	7.8	6.7	2.2	1.1	0.0	0.0
26	0.0	0.0	...	...	...	...	4.5	2.8	7.2	6.1	15.6	13.4	21.7	15.6	22.2	22.2	12.2	12.2	8.9	7.8	2.2	1.7	0.0	0.0
27	0.0	0.0	...	...	...	...	4.5	3.4	7.8	5.6	15.0	13.4	14.5	7.2	21.7	17.8	12.2	12.2	8.9	8.9	2.2	1.1	0.0	0.0
28	0.0	0.0	...	...	...	...	5.6	3.9	7.8	7.2	16.1	14.5	6.7	5.6	18.9	14.5	13.4	12.2	8.9	8.9	1.1	0.0	0.0	0.0
29	0.0	0.0	...	...	...	...	5.6	3.9	7.8	6.7	17.2	15.6	10.0	5.6	20.6	15.6	13.4	13.4	8.9	8.9	2.2	0.6	0.0	0.0
30	0.0	0.0	...	...	...	...	6.1	4.5	7.8	6.1	17.2	16.1	11.1	10.0	20.0	20.0	13.4	12.2	7.8	6.1	2.2	2.2	0.0	0.0
31	0.0	0.0	...	...	...	...	...	...	8.9	7.8	...	...	12.2	10.0	20.0	18.9	...	...	6.7	5.6	...	...	0.0	0.0

Table 31.--Daily maximum and minimum temperatures (°C.) recorded in 1956 by thermograph at Calumet and Hecla water plant

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	...	...	...	...	...	...	2.2	1.1	4.5	3.4	...	...	...	...	...	...	17.8	17.2	12.2	12.2	10.0	9.5	...	...
2	...	...	...	...	...	...	2.8	1.7	4.5	3.9	...	...	...	...	16.7	15.6	18.4	17.2	12.2	12.2	8.9	8.4	...	...
3	...	...	...	...	...	...	2.8	2.2	5.6	4.5	...	...	...	...	15.6	9.5	17.8	17.2	12.8	11.7	8.4	8.4	...	...
4	...	...	...	...	...	...	2.8	2.8	5.6	4.5	...	...	...	...	15.0	8.4	18.4	17.8	12.8	11.7	9.5	8.4	...	...
5	...	...	...	...	...	...	2.8	2.2	6.1	5.0	...	...	9.5	7.8	15.6	14.5	18.4	17.2	12.2	11.7	10.0	9.5	0.0	0.0
6	...	...	...	...	...	...	2.2	2.2	6.7	4.5	...	...	13.4	10.0	17.2	15.6	17.2	16.1	11.7	10.6	...	...	2.8	2.2
7	...	...	...	...	...	...	1.7	1.7	6.7	5.0	...	...	12.8	11.7	17.8	16.1	16.1	15.6	11.1	10.6	...	...	2.8	2.2
8	...	...	...	...	...	...	1.7	1.1	...	...	...	...	11.7	7.2	...	...	15.6	15.6	11.1	10.6	...	...	1.1	0.0
9	...	...	...	...	...	...	2.2	1.7	6.7	6.1	...	...	7.8	7.2	...	...	15.6	14.5	10.0	10.0	...	...	0.6	0.0
10	...	...	...	...	...	...	3.9	2.2	6.1	5.0	...	...	10.0	7.8	...	...	15.6	15.6	10.6	10.6	...	...	0.6	0.0
11	...	...	...	...	...	...	4.5	3.4	6.7	4.5	...	...	10.0	8.9	...	...	16.1	15.0	10.6	10.0	...	...	0.6	0.0
12	...	...	...	...	...	...	4.5	2.8	7.8	6.7	...	...	10.6	8.4	...	...	16.7	15.6	11.1	10.0	...	...	...	...
13	...	...	...	...	...	...	3.4	2.2	6.7	5.6	...	...	11.7	7.8	...	...	16.1	16.1	12.2	11.1	...	...	...	...
14	...	...	...	...	...	...	3.4	3.4	7.8	5.6	16.1	16.1	12.2	11.1	...	...	15.6	12.2	12.2	10.0	...	...	...	...
15	...	...	...	...	0.0	0.0	3.4	3.4	7.2	6.1	16.1	8.4	11.7	11.7	...	...	12.2	7.2	11.7	11.7	...	...	...	...
16	...	...	...	...	0.0	0.0	3.4	1.7	6.7	6.7	7.8	6.7	12.2	10.6	19.5	18.4	13.9	8.4	11.7	11.7	...	...	...	...
17	...	...	...	...	0.0	0.0	1.7	1.7	6.7	5.6	6.7	6.1	12.2	8.9	19.5	18.4	13.4	13.4	12.2	...	...	...	...	...
18	...	...	...	...	0.0	0.0	2.8	1.7	7.8	6.7	6.7	6.1	11.7	6.7	18.9	18.4	13.4	12.8	12.2	11.7	...	...	...	...
19	...	...	...	...	0.0	0.0	3.4	2.2	8.4	6.1	6.7	6.1	6.7	6.7	18.4	17.8	12.8	11.1	10.0	9.5	...	...	...	...
20	...	...	...	...	0.6	0.0	2.8	2.2	7.2	6.1	8.9	7.2	7.2	6.7	18.9	17.8	11.7	10.6	10.6	10.0	...	...	...	...
21	...	...	...	...	0.6	0.6	3.4	2.8	7.2	6.7	10.6	8.9	6.7	5.6	18.4	17.8	12.2	11.1	11.1	10.6	...	...	...	...
22	...	...	...	...	0.6	0.6	3.9	2.8	7.8	6.7	10.0	8.4	...	...	17.8	17.2	12.2	7.2	11.1	10.6	...	...	...	...
23	...	...	...	...	0.0	0.0	3.9	2.8	7.8	6.7	8.4	6.7	...	...	17.8	17.2	...	...	10.6	10.0	...	...	...	...
24	...	...	...	...	0.6	0.0	4.5	3.4	8.4	6.7	11.1	6.1	...	...	17.8	17.2	...	...	...	...	...	...	...	...
25	...	...	...	...	0.6	0.6	4.5	3.9	6.7	6.7	11.7	10.0	...	...	...	...	...	...	...	...	...	...	...	...
26	...	...	...	...	0.0	0.0	4.5	4.5	6.7	6.7	11.1	9.5	...	...	...	...	...	...	...	...	...	...	...	...
27	...	...	...	...	0.6	0.0	4.5	2.8	...	...	10.0	10.0	...	...	...	...	12.2	10.6	...	...	...	...	...	...
28	...	...	...	...	1.1	0.0	3.4	2.2	...	...	11.7	9.5	...	...	...	...	12.2	11.1	...	...	3.4	2.2	...	...
29	...	...	...	...	1.7	0.6	3.4	2.8	...	...	12.8	11.1	...	...	...	...	12.2	11.7	...	...	2.8	2.2	...	...
30	...	...	...	...	1.1	1.1	3.9	2.8	...	...	14.5	12.2	...	...	17.8	16.1	12.8	11.7	11.7	10.6	2.2	1.7	...	...
31	...	...	...	...	1.7	1.1	...	...	...	...	...	...	...	...	17.2	13.4	...	...	11.7	11.1	...	...	...	...

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